Villager Responses to Drought

An Ethnographic Study in Southwest China

Aisi Shang

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Except where otherwise indicated, this thesis is my own original work.

Aisi Shang

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Abstract

This thesis explores the social underpinnings of disasters associated with natural hazards. In existing disaster studies, it is common to classify people into different vulnerable groups and examine the vulnerabilities that limit them. Rather than take this approach, which I argue reinforces stereotyped images of vulnerable people as weak and passive, this thesis examines people's experiences of and responses to a drought in Yunnan Province, southwest China. Building on existing literature, my ethnographic fieldwork and a broad understanding of Chinese society, I have analysed and explained different forms of social institutions, power relations and sets of practices based on China's rural-urban divide, intra-rural inequality, ethnicity, gender, and social age and life course, and have examined how these forms of inequality and difference shaped communities', households', and individuals' experiences of and responses to drought. I argue that villagers exercise agency, and actively manage the challenges of drought in their daily life. However, their choices are made within the confines of institutional constraints. Different social institutions and relations interact with each other to shape variations in people's experiences of and responses to drought. At the community level, the existence of village infrastructure and the help of external agencies are key. Obtaining funds for infrastructure construction and drought relief largely depends on personal connections between the village communities and external agencies. At the household level, patterns of social inequalities, in particular the inequalities between ordinary households and those of village cadres, combines with the life course of households to shape experiences of and responses to drought. Within the household, gender intersects with individuals' life courses to shape people's experiences of drought and their responses to it.

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1 hectare = 15 mu

1 AUD = 5.2 RMB Yuan (approximately in 2017)

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Introduction

This thesis is concerned with the social aspects of so-called "natural disasters." It examines local villagers' various responses to and experiences of drought in rural Yunnan, southwest China in the period 2009–2014. Through this case study, the thesis makes a significant, original contribution to knowledge by illustrating the benefits of a new conceptual and analytical approach to drought, which improves upon existing disaster studies.

In this Introduction, I first provide a critical review of approaches to the study of drought and other "natural disasters" taken by scholars around the world. Then, I explain my conceptual approach and research questions, and the methodology I employ in this study. Finally, I present the chapter outline of my thesis.

Map 1 Yunnan Province

Source: Australian National University GartoGIS

1. Critical review of the literature

1.1 Vulnerability to disasters

Prior to the mid-1970s, most scholarship on disasters associated with extreme natural events, such as earthquakes, tsunami, floods and drought, assumed they were unusual accidents of nature (Wisner 2016, 5). Consequently, attention was focused on how naturally-triggered hazard events affect human society and how human interventions, which take the form of technocratic measures, reduce the negative impact of hazard events. However, this framework offered little help in understanding the empirical findings of researchers that different human groups suffer different degrees of death, injury, loss and disruption from the same natural event. Even within a single community, residents exposed to the same extreme natural events do not experience it in the same way. Some people suffer great loss and may even confront a survival crisis, while others do not even perceive the natural event as constituting "disaster," as it does not involve threats to their welfare. These differences cannot be explained through understanding natural triggers, but are associated with pre-disaster social settings. In practical relief work, this interplay between the natural and social aspects of disasters was often neglected, with the result that the patterns of prejudice, injustice and disadvantage were commonly reinforced, resulting sometimes in even greater "disaster" to affected populations (e.g., Hartman and Squires 2006; Bullard and Wright 2012; Zhang 2014).

In response to these drawbacks, in the 1970s and early 1980s, the conception of "vulnerability," generally defined as the potential to be adversely affected by an event or change (Kelly and Adger 2000), emerged as a key concept for alternative explanations of disasters. With the vulnerability approach, disaster is viewed as a socially constructed process (Hoffman and Oliver-Smith 1999, 6). It is the magnitude and severity of vulnerabilities in the presence of natural hazards that result in disasters of different kinds.

Focusing on the concept of vulnerability offers a fruitful theoretical framework for understanding the social processes, experiences and consequences of disasters. In contrast to prevailing views that disasters are departures from normal social functioning, and that recovery means a return to normality, the focus of the vulnerability approach is on how society creates the conditions in which people face disasters differently. As

Cannon argues, "There are no generalized opportunities and risks in nature. Instead, it is social processes that generate unequal exposure to risk, making some people more affected than others" (1994, 14).

A second important aspect of the vulnerability approach is that it provides a more comprehensive measure of exposure to risk than approaches that only examine poverty. Although it is true that much suffering in disasters is experienced by poor people, it is insufficient to use poverty, measured in terms of monetary income and material assets, as the only factor to explain the disastrous outcome of natural hazards. People's vulnerability can be shaped by a combination of variables, including individual characteristics such as gender, age, race, health, income, employment, and the characteristics of communities and the built environment, such as level of urbanization and economic vitality. Poor people are not necessarily vulnerable, nor are they all vulnerable in the same way. This point has been made by a number of scholars taking the vulnerability approach, including Blaikie et al. (1994, 2004), Cutter et al. (2003) and Bankoff et al. (2004).

Since the 1980s, the vulnerability approach has progressively become central to contemporary social scientific disaster research (e.g., Oliver-Smith 1986; Blaikie et al. 1994; Hewitt 1997; Bankoff et al. 2004) and to the creation of practices and strategies aimed at mitigating the impact of disasters (GNDR 2011; IPCC 2012). The approach was introduced to Chinese scholars in the late 1990s (e.g., Jiang and Xu 1996), as a critique of dominant Chinese disaster studies, which focused on predicting and modelling meteorological patterns of natural hazards, understanding their environmental impacts, and developing technocratic mitigation strategies (e.g., Ma et al. 2012; Zhang et al. 2012; Fu et al. 2014). Since then, the concept of vulnerability has progressively gained importance within the field of Chinese disaster studies. Currently, in the literature on disasters in China and elsewhere around the world, various analytical frameworks have been developed to identify the different factors contributing to people's and communities' vulnerability to specific disasters as well as measure the varying impact of these vulnerabilities on people's responses. In addition, vulnerability analysis increasingly has been included in mainstream development programs aimed at identifying people in particular need of aid.

However, in most empirical case studies and policy work relating to disasters in China and elsewhere, the vulnerability approach is employed in only a very limited fashion. Differences in vulnerability are usually documented in terms of a set of social characteristics of individuals, groups and communities that influence their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard (e.g., Cutter et al. 2003; Lovekamp 2006; Baker and Cormier 2014; Yang et al. 2015). In some cases, detailed checklists are designed to assess the vulnerability of population sub-groups, and through the use of these checklists, certain groups of people, particularly women, ethnic minorities and the elderly are shown to be always vulnerable. Even when these so-called "vulnerable groups" are recognized as having a strong body of knowledge and expertise that can be used in disaster management and mitigation, they still are commonly seen as needing training and instruction from outside to help them effectively apply their knowledge to cope with difficult situations (e.g., Wiest et al. 1994; Gupta and Gupta 2003; Sultana 2010).

This tendency to classify and label groups of people as inherently or always vulnerable and hence ignore their capacity may actually encourage a negative perception of such people as passive and unable to cope, and may serve to reinforce popular and ingrained prejudices, stereotyped images and dubious explanations that further their social marginalization (Lein 2009, 110). People affected by natural hazards, particularly those who are identified as vulnerable groups, are often depicted as being passive with regard to disaster prevention, mitigation and responses and sometimes are even accused of not appraising the threat and thus making poorly informed decisions in facing natural hazards (Gaillard and Nepomuceno 2011, 30). Labelling people as vulnerable may be convenient for relief agencies and governments in their search for target groups, as well as in their efforts to attract and obtain funds from external sources. However, even as a short-term strategy for gaining resources, viewing people as undifferentiated groups of passive sufferers in need of external aid and direction is politically dangerous, "because rather than leading to a more equal distribution of the resources needed for well-being, such strategies may reinforce a perception that the recipients are a costly burden, thus, social support for such people should be kept to a minimum (Jacka 2014, 188)." For example, in the United States, a long-standing cultural characterization of poor and black welfare recipients as passive dependants which has been reinforced by politicians and policy makers, has led to a widespread belief that assistance recipients, especially

black recipients are abusing public programs (Gilens 2000; Collins 2004).In the case of Hurricane Katrina, poor and black survivors faced tension between competing culturally imposed ideas about "deservingness"(Reid 2013,743). Rather than being viewed as "deserving" disaster victims, they were considered "undeserving" welfare cheats, making it harder to get assistance to them in a timely manner (Ibid.). Since 2000, an expanding body of theoretical research has highlighted the need for a movement away from simple taxonomies or checklist of "vulnerable groups" to a concern with "vulnerable situations" which people move into and out of over time. Scholars such as Bankoff et al. (2004), Blaikie et al. (2004), Oliver-Smith (2013), Faas (2016) and Kelman et al. (2016) have emphasized the dynamics of vulnerability, and pointed out that the vulnerability of particular groups is a feature of social relations operating in everyday life, not an outcome of their inability to cope with disasters (Veland et al. 2013). In addition Hsu et al. (2015) have used the term "procedural vulnerability" to draw attention to the ways that risk or vulnerabilities constructed in colonial relationships and reinforced by post-colonial relationships affecting indigenous groups create a risk landscape in which natural hazards are contextualized. The authors have pointed out that a stress on the social characteristics of a particular group does not in itself help to understand why and how those social characteristics may be associated with a higher probability of injury, death, livelihood disruption or greater difficulty in recovery from disaster. These inequalities or "procedural vulnerabilities" arise from people's relationships to power and the ways that power is exercised. Therefore, the disproportionate distribution of power and risk should be placed at the centre of vulnerability analysis. Unfortunately, these points are commonly not incorporated into disaster mitigation policy and empirical case studies.

In this thesis, I build on the vulnerability approach to understand drought in Yunnan. The focus of this thesis is on how society creates the conditions in which people respond to drought in different ways. I draw on an anthropological approach, which helps to address two common weaknesses in existing disaster studies. First, rather than label some people as "vulnerable groups" during drought, I emphasize how unequal power relations within society shape people's differing experiences of drought (Gamburd 2013; Schuller 2016; Barrios 2017).

Second, following Faas (2017) and other recent scholars in disaster studies (e.g., Marino and Lazrus 2016), I avoid viewing affected populations as passive sufferers

lacking the capacity and skills to cope with and recover from drought. In current Chinese academic and policy work concerning the drought in Yunnan, local villagers are widely believed to lack the capacity and skills to cope with and recover from drought (e.g., Rui 2012; Yang and Gao 2012; Cui 2014). Yet villagers in Yunnan have had a great deal of experience learning to adapt to drought. Known as the Water Tower of Southeast Asia, Yunnan Province is famous for its hydropower[1] and is recognized as having abundant water resources.[2] However, large amounts of the water are inaccessible at the surface due to characteristics of the karst landscape, including a high infiltration rate, fast groundwater flow and small soil water storage capacity (Wan et al. 2016, 24). In addition, climatically dominated by the combination of the Southwest and East Asian Monsoons, annual precipitation is unevenly distributed in Yunnan. Rainfall in winter and spring accounts for less than 20 percent of the annual precipitation (Yang and Gao 2012, 73). Therefore, drought, in particular spring drought, is not a rare phenomenon for locals. Between 1950 and 2011, drought occurred in 58 of the 62 years, and was identified as severe in 22 years (Ibid.). The period of drought examined in this study, which stretched from 2009 to 2014, is the longest in living memory. Nevertheless, the strategies that local communities, households and individuals developed previously to help them maintain their everyday lives during shorter periods of drought continued to be important during this more extended drought.

The concept of "resilience," that is, the ability or capacity to cope with and recover from the impact of a disturbance or adversity (such as disaster) (Paul 2011, 86) provides a useful perspective on this issue, as will be explained in the following section.

1.2 Vulnerability and resilience

The term "resilience" emerged out of ecological science and has particularly influenced ecology and natural resource management literature (Folke et al. 2003). The key

[1] The province includes major rivers that drain into the Pacific (Jinsha/Upper Yangtze), the South China Sea (Lancang/Mekong; Red River, Nanpan/Upper part of Pearl River) and the Indian Ocean (Irrawaddy and Nu/Salween). As a result of its topography and climate, Yunnan is one of the global core areas for hydropower development, and is therefore referred as Southeast Asia's water tower, and China's (hydro) powerhouse or battery (Hennig et al. 2013).

[2] The total amount of water resources in the province reached 221 billion cubic metres in 2014, ranking it third in the country. See 2014 云南省水资源公报 (2014 Water resources bulletin of Yunnan Province), available on the website of Water Resources Bureau of Yunnan http://www.wcb.yn.gov.cn/arti?id=54584.

features of resilience are the resistance to disturbance, capacity to self-organize, and capacity to learn and adapt (Folke 2006). Scholars undertaking disaster studies draw on this concept to examine the ability of human beings and their communities to absorb, deflect, or resist potential disaster impacts and the ability to bounce back after being impacted (Peacock et al. 2010, 7).

This conception is very useful as a corrective to the negative implications of an over-concentration on people's vulnerability (victimhood, passivity, lack of agency, etc.). In addition, advocates of resilience studies have continuously emphasized that resilience not only includes those strategies and measures adopted in order to mitigate disasters, but also the capacity to remain functional during a disaster and the capacity for renewal, re-organization and development (Folke 2006). As a result, the concept of resilience has often featured prominently in discussions of how to achieve sustainable development (Magis 2010; Paul 2011; Davies et al. 2015).

Similar to the vulnerability approach, a focus on resilience has increasingly been included in mainstream disaster prevention and mitigation programs and various analytical frameworks have been developed to assess people's or communities' resilience to disasters. However, in these studies, there is a tendency for resilience to be seen only in terms of a very narrow range of adaptive strategies, identified by external expertise (e.g., Sakai et al. 2014; Speranza et al. 2014; Cox and Hamlen 2015). This may undermine an understanding of the agency of affected people and communities, as people make sense of the threats posed by disasters and respond to them in ways reflective of varying social and economic resources at their disposal. As some scholars have pointed out (e.g., Lahiri-Dutt and Samanta 2007; Lein 2009), behaviours and activities that appear maladaptive and obscure to outsiders may have positive significance as local responses. People have their own perspectives and priorities that may diverge from those of researchers and relief agencies. Thus, understanding how local people "frame" issues is crucial to understanding their resilience.

Another drawback of current resilience analyses is the tendency to oversimplify resilience to the capacity to return to a pre-disaster state or adapt to conditions created by an anthropogenic process (Barrios 2016). Such a way of understanding resilience diverts attention away from the root social and development causes of disasters. As a

result, resilience building that emphasizes perseverance may perpetuate the practices that shape disasters (Ibid, 35).

This thesis seeks to look beyond resilience. Particular attention is given to disaster response initiatives that are sensitive to social institutions and relations that create inequity, marginalization and injustice. The thesis also foregrounds the voices of people and communities who directly bear the impact of disasters. I emphasize people's agency, that is, their ability to define goals and act upon them (Kabeer 1999, 438). "Agency encompasses a wider range of purposive actions, including bargaining, negotiation, deception, manipulation, subversion, resistance and protest" and it is about, "more than observable action; it encompasses the meaning, motivation and purpose which individuals bring to their activity, their sense of agency, or the power within" (Ibid.). I pay particular attention to the meanings and significances that local people attach to what happened to them and how they acted during drought to explore their resilience and appreciate their agency.

In addition to emphasizing local resilience, many recent studies have shifted the focus of mitigation from emphasizing the ability of external expertise to correctly identify problems and introduce appropriate solutions to encouraging community participation. Local knowledge is seen as the key to resilience (e.g., Manyena 2006; Chaiphar et al. 2013; Mavhura et al. 2013).

However, much of the literature emphasizing community participation is marred by a failure to recognise that, like vulnerability, resilience is shaped and constrained by broader institutional frameworks and power relations. Participatory approaches taken by development agencies often fail to build or increase resilience, because they do not overcome existing imbalances in power and control of valuable resources, including local knowledge as well as material resources, which perpetuate vulnerability (Oliver-Smith 2013, 278). To stress this issue, this thesis puts great emphasis on the unequal power relations within communities and how these relations are produced and reproduced during interactions between local communities and external relief agencies.

2. Conceptual approach and research question

Building upon existing disaster studies framed by the concepts of "vulnerability" and "resilience," this thesis provides an ethnographic case study, which contributes a nuanced and concrete understanding of the social contexts that shape the impact of natural hazard, specifically drought.

2.1 Beyond "disaster vulnerability" and "resilience"

In the thesis, disaster is viewed as "a process combining a potentially destructive force from the natural environment with a population's socially constructed set of circumstances, resulting in a perceived disruption of the customary relative satisfactions of individual and social needs for physical survival, social order and meaning" (Oliver-Smith and Hoffman 2002, 4).

Rather than classify people into different vulnerable groups and examine the vulnerabilities or lack of resilience that limit them, I undertake a detailed exploration of people's experiences of and responses to a natural hazard, specifically, drought. I view people as active agents who make varying choices in responding to environmental stress; their choices are shaped within the confines of institutional constraints.

My main research question is "how do social institutions[3] and social relations shape varying experiences of and responses to natural hazard among differently positioned members of rural communities?" To be specific, I ask how differently positioned villagers experience drought and its effects on their lives? How do they respond to the challenges posed by drought? And beyond this, what is the nature of the social institutions and relations shaping differences in people's experiences of and responses to drought?

Building on my fieldwork findings and a broader understanding of Chinese society, I focus my examination on social institutions, power relations and sets of practices relating to a rural-urban divide, intra-rural inequality, ethnicity, gender, and social age

[3] I employ a broad definition, understanding social institutions as the laws, rules, customs and norms that influence social roles and interactions (Jacka et al. 2013, 5).

and the life course. Below, I provide a discussion of how these institutions and relations shape people's daily life in China, and therefore, shape their experiences of and responses to the drought.

Rural-urban divide

In China, an urban-rural divide is not only seen in a differential distribution of population and industry, but also reflects a social stratification system. To give some sense of the impact of this stratification, in 2015, the ratio of rural to urban incomes was 1:2.73 (NBS 2016a), and the rural-urban difference with respect to the infant mortality rate was approximately 2:1.[4] In addition, according to the 2010 Sixth National Population Census, in urban areas, the illiterate population accounted for 1.9 percent of the total population aged 15 or over, while in rural areas, the proportion reached 7.26 percent (NBS 2010).

In this thesis, I focus on three further sets of rural-urban inequalities, which shape people's experiences of and responses to drought. These relate to the greater significance for rural livelihoods of agriculture, which remains dependent on the weather; the weaker provision of public goods in rural areas; and the household registration system, which affects rural to urban migration.

Generally speaking, drought has a major impact in rural areas because agriculture, which remains dependent on the weather, is the primary economic activity.[5] In 2009, the year in which drought occurred, income from agriculture and sideline activities accounted for nearly 60 percent of the per capita income of rural households across the nation (Liu and Yuan 2012, 75–76). The proportion was much higher in Yunnan province, accounting for about 80 percent of the per capita income of rural households (Ibid.).

Comparatively weak infrastructure in rural areas further exacerbates the suffering caused by drought. In China, infrastructure in urban areas is financed by the state fiscal

[4] This is calculated based on data from the website of NBS, available on http://data.stats.gov.cn.
[5] In 2015, for the first time, household income of wages and salaries exceeded income from agriculture and sideline activities in rural China. See China Statistical Yearbook 2016, available on the website of NBS http://www.stats.gov.cn/tjsj/ndsj/2016/indexeh.htm.

budget. However, in rural areas, villagers have to rely more on themselves to come up with ways to at least partially fund local public goods.

This difference is closely related to the decentralization of the provision of local public goods in rural China (Luo et al. 2007; Tsai 2007; Sha and Li 2009; Lu 2014). Before the reforms of the late 1970s, the basic social organization in rural China was the rural people's commune, a structure with a three-tier system of ownership, including production teams, brigades and communes (Dutt 1961; O'Leary and Watson 1982). The basis of the commune system was the production team, which owned land, labour and animals, and also managed farming tasks and formed the unit of accounting and dividing income (O'Leary and Watson 1982, 593). At successively higher levels of organization, the brigade and the commune provided inputs of overall production management and were responsible for the provision of larger machinery, water resources and other public goods (O'Leary and Watson 1982; Lu 2014). Despite inefficiencies in generating incentives for agricultural production, the commune system was effective in accumulating resources for rural infrastructural construction (Ye 1997; Wang 2011).

Major changes occurred in the funding and construction of village infrastructure with decollectivisation and the abolition of the commune system in the early 1980s. After that, communes were succeeded by townships. Before the late 1990s, townships were able to collect comprehensive fees (*xiangtongchou* 乡统筹) through administrative villages (generally equivalent to brigades) for subsidizing village public goods provision, including village infrastructure, family-planning programs, militia training, schools and other public welfare (Lu 2014, 273). Meanwhile, administrative villages were also allowed to retain fees (*cuntiliu* 村提留) from villagers for maintaining infrastructure, subsidizing public welfare and paying village administration expenses and the salaries of village cadres (Ibid.). Since these fees were levied to some extent at village cadres' direction, problems such as corruption among village cadres and increasingly confrontational cadre-village relationships emerged (Bernstein 2003; Tsai 2007; Lu 2014). To address these issues and to gain access to revenue previously left to local governments, in 1994, the central government reclaimed certain local tax allowance and tightened fiscal regulation (Wang 1995, 1997). In the early 2000s, after several local experiments, the tax-for-fee reform was launched, and both *xiangtongchou* and *cuntiliu*

were abolished. In 2006, the only remaining central government tax feeding in to township and village coffers, that is, the agricultural tax, was finally abolished.

Since then, financial resources at the disposal of township and village cadres have been extremely limited (Edin 2003; Oi et al. 2012). This tightening fiscal regulation has undermined township governments' incentives to intervene in village affairs and increased their indifference to village governance (Kennedy 2007; Wang 2012). Currently, in more developed regions of China, aside from receiving a share of funding from governments, villages tend to use their own sources of revenues such as revenue from collective enterprises, to provide local public goods. In contrast, villages in central and western regions, such as Yunnan, lack their own revenue streams and have had to primarily rely on project grants from upper-level governments, in particular, from county governments who have been given the main responsibilities and fiscal resources for financing village projects (Fock and Wong 2012; Lin and Wong 2012).

However, government funds for infrastructural construction are not equally and automatically allocated to villages. Village cadres must usually apply for them from upper-level governments and their applications are ranked in competition with other villages. This results in differences in the quality and extensiveness of infrastructure among villages.

During a drought, this difference acts as a key factor differentiating villagers' experiences of and responses to drought. Villages with developed facilities were able to protect their inhabitants from the issues caused by water shortage and hence, maintained a relatively normal life during the period of drought. In contrast, residents of villages without access to developed infrastructure suffered great financial loss, due to the loss of their usual water source for a long period of time. The detail of these variations will be explained in Chapter 3.

With agricultural activities severely disturbed, migration is a widely adopted strategy taken in response to drought. In Yunnan during the recent drought, many villagers migrated out, especially to urban centres, to earn wage incomes for their families as well as lighten the burden of water shortages. However, villagers' migration choices were

constrained by state policies, underpinned by the household registration (*hukou* 户口) system.

The *hukou* system was instituted in urban areas in the early 1950s, and expanded to rural areas later in the decade. Under this system, people are registered in the locale where they reside and are categorized as belonging to either agricultural or non-agricultural households. As an artefact of the command economy, the system was originally designed not just to provide demographic information, but also to regulate the supply of labour for state enterprises by managing mass rural-to-urban migration, and to ensure structural stability for the economy by keeping peasants on farms to ensure food production (Arreola 2009, 2). Although economic reform in the past three decades has relaxed administrative control over geographic mobility and change of employment, the household registration system remains a basic institution in Chinese society, which affects access to welfare, education, health care, and, in the largest cities, employment and housing.[6] These limitations on rural migrants' citizenship rights in the city commonly lead to a geographical splitting of the rural household, with some family members staying in the village because the migration of the entire family is not feasible. Meanwhile, migrant workers in the city tend to suffer more than other urbanites, as migrant settlements are usually overcrowded dwellings with weak infrastructure. How the *hukou* system shapes villagers' migration strategies and their lives as migrants during the drought will be explored in Chapter 5 of this thesis.

Intra-rural inequality

There is much more to the story of inequality than just the rural-urban divide. Since the decollectivization of agriculture and the liberalization of household production in the early 1980s, rural Chinese society and political economy have experienced rapid changes. Village families in different parts of China have moved to varying degrees out of agriculture, into various combinations of agricultural and non-agricultural production, undertaken as unpaid family labour, waged labour, self-employment and the employment of others. This in turn has increased differentiation between and within

[6] Major changes to the hukou system have taken place since 2010. The threshold for transferring from "agricultural household" to "non-agricultural household" has been lowered in some places, especially towns and smaller cities. However, a rural-urban divide and local–non-local divide in access to welfare as well as public services due to the hukou system still exist in most areas of China.

villages, including class differentiation (e.g., Zhou et al. 2008; Zhang 2015) and differentiation between those of different genders and generations (e.g., Jacka 2017).

In the drought-affected areas of rural Yunnan, small family farming still dominates the economic landscape and households are highly dependent on cash crop production (particularly tobacco production) as their main source of income. Between 2009 and 2014, several consecutive years of drought led to a major reduction in crop productivity, which in turn caused a decrease in household income. In response to this, villagers implemented different strategies in order to secure sufficient income for the family. However, the ability to achieve this goal was largely reliant on access to a more stable income than cash crop production. Consequently, households of successful entrepreneurs and households with members with access to a stable wage income, such as teachers, soldiers, factory employees and office workers on long-term contracts tended to be less affected by the drought than households engaging only in agricultural activities. Meanwhile, by taking advantage of their political position, village cadres or former cadres as well as their families commonly had greater access to the resources needed to effectively respond to drought than ordinary villagers. These forms of differentiation and inequality among rural households will be discussed in more detail in Chapter 4.

Gender

In rural China, another key social institution that produces and constrains people's ability to cope with drought is the patriarchal family. Patrilineal descent and inheritance, patrilocal marriage and patriarchal family relations are hallmarks of the rural Chinese family (Jacka et al. 2013, 27). In general, daughters are expected to marry patrilocally, that is, to leave their patrilineal family to join their husband's and continue their husband's patriline. It is usually only when a family has no sons that it is considered acceptable for a daughter to marry uxorilocally, bringing in a husband to continue the patriline of her family (e.g., Zhang 2008). Therefore, daughters tend to be considered "temporary members" of their natal family, less valuable than sons. For example, in some poor households, parents have been reluctant to invest resources in girls' education and have given priority to their sons (Deng et al. 2014). Patrilocal marriage also separates women from the protection of their family and natal village and moves

them to a new place where they have few social ties, which may make them more vulnerable in their husband's family (Whyte 1979; Judd 1994; Bossen 2007).

As will be discussed in more detail in Chapter 5, efforts to maintain patrilineages are also shaped by practices relating to the control and transmission of family property, which constrains women's access to key resources such as land and credit. A lack of access to and control of key resources, combined with a lack of opportunities for involvement in decision-making processes often constrains the coping strategies female family members can draw upon and makes it more difficult for them to effectively respond to changed circumstances during drought.

In rural Yunnan, women are highly visible as drought victims. In media portrayals, almost all male villagers are depicted as working away from home, leaving women, children and the elderly struggling with the drought. The female farmer kneeling on the cracked landscape to beg for rain, the women with their young children standing in line for water delivered by male government officials, and the older woman carrying a large tank of water on her back have been icons of the drought in rural Yunnan. However, there is a lack of gender-specific data. Chapter 5 provides a detailed analysis of the impact of gender on people's experiences of and responses to drought.

In disaster literature, careful, thorough and purposeful examination of gender has been undertaken only since the 1990s (Enarson and Meyreles 2004, 130). Before then, the knowledge base on women and disasters was largely derived from surveys, which included sex as a demographic variable but provided only limited information on gender difference.

There is no single theoretical approach framing research on gender in disasters, as researchers use insights freely borrowed from both disaster sociology and feminist theory. Most, though, begin with the vulnerability approach (Enarson et al. 2007, 130). As mentioned above, the aim of the vulnerability approach is to explain disasters in their social contexts, putting the main emphasis on the various ways in which social systems operate to generate disasters by making people vulnerable (Blaikie et al. 2004, 10). This has inspired feminist researchers to draw on the vulnerability approach to help investigate specific structural sources of gender vulnerability.

One problem with studies taking this approach is that they commonly focus only on what women lack or cannot do, but not on what they have or can do. The social vulnerability analysis is used in a cumulative way to show that women are always vulnerable because they have difficulty in coping with crisis. This approach has been critiqued and improved by scholars emphasizing women's "capacity." The focus of these studies is on women's proactive works in disaster management, as food and water providers, paid and unpaid caregivers, community leaders and activists, household and family advocates, protectors and nurturers of children and dependents, and material and emotional sustainers of home and neighbourhood (Enarson and Morrow 1998, 171). It is very important to emphasize women's strengths and resources rather than represent them as "helpless victims." However, the focus on women's capacity for care and the consequent inclusion of women as carers in post-disaster activities may risk reinforcing the notion of a "feminized responsibility to care" (Bradshaw 2009, 130), implying that women are naturally assigned the work to take care of others. In some studies, men are portrayed as marginal or self-centred patriarchs while women are seen as more altruistic and as expending their energies and earnings on the family (e.g., Arku and Arku 2010; Madaha 2012). This not only runs the risk of reinforcing current gender stereotypes which constrain both women and men, but also is likely to limit understanding of the factors contributing to gendered vulnerability.

In response to these problems, in this thesis, rather than approaching gender as a box to tick in a checklist of vulnerability, my analysis relies on an understanding of gender as "fluid, socially constructed and multidimensional, entailing both structure (a set of patterned institutional arrangements) and process (ongoing change in action and interaction)" (Tickamyer and Kusujiarti 2012, 8). I focus on the examination of "gender relations," which are characterized by "both cooperation and conflict, and their hierarchical character in any given context is maintained or changed through a process of contestation or bargaining between actors with different access to economic, political and social power" (Agarwal 1994, 51). Unlike previous studies that only focus on the vulnerability of women or the differences between men and women, I emphasize relations of power between women and men. In Chapter 5, I examine a range of practices, ideas, and representations, which reveal gendered power relations, including the division of labour, roles, and resources between women and men, and the ascription to them of different abilities, attitudes and desires.

Age: a life course perspective

As one of the key factors which accounts for people's vulnerability, age is a highly visible variable in disaster literature. The elderly and small children are generally considered vulnerable in disaster situations because of their lessened mobility and their high dependency on other for support and protection (e.g., Babugura 2008; Bodstein et al. 2014). Apart from this, age shapes people's responses to disasters in more complicated ways. Like gender, people's age enables certain opportunities while disallowing others at any given time. For example, to sustain their households during the period of drought, young adult villagers in Yunnan commonly undertook migrant wage work, earning cash incomes for themselves and their families. Meanwhile, children, teenagers, women with young children, and the elderly tended to stay in the village, go to school, and/or carry out farming as well as domestic chores.

It should be noted that perceptions of one's own age are shaped by multiple factors present at a particular point in time, including age-related demographics, social valuations of different age groups, and the relative importance of age in structuring social life (Barrett and Montepare 2015, 56). For example, when doing fieldwork in rural China, it is very common to find that local people have different understanding of "old age." Sometimes "the elderly" refers to people who are no longer classified as labour because they are age 65 years or older (Murphy 2004, 55), and sometimes people refer to 60 years as the start of old age, because this is the age at which they are entitled to state pensions and other welfare payments.[7] But in many cases, younger people may be considered as "elderly" because they have grandchildren.

In response to these issues of "subjective age," this thesis focuses on the interconnectedness of family members at different stages of their life course; an age-graded sequence of socially defined roles and events that are enacted over historical time and space (Mortimer and Shanahan 2006, 15). This life-course perspective aims to link historical and biographical contexts through a focus on the age-related structuring of social life (Barrett and Montepare 2015, 64). It highlights temporal issues that shape

[7] According to the New Rural Social Pension Insurance Pilot Guidance (officially released on 7 September 2009), farmers in China are able to enjoy a pension from 60 years of age. And since 2010, some local governments have also established a living allowance policy (*shenghuo butie* 生活补贴) for rural residents who are more than 60 years old (Dong and Wang 2014).

age-related patterns, such as the timing or transitions in and out of a specific social role. Thus, the term "life course" is a better variable on which to focus than "age," because it encompasses more of the social dimensions of a person's situation and activities (Huang 2012, 314).

Furthermore, the life-course perspective can be extended to the household level. As the composition and structure of households vary over time, household life can also be perceived as a series of stages, reflected by the sequential changes in family relationships, livelihood strategies and material welfare that occur through the addition, aging and loss of members (Bengtson and Allen 2009, 469–470). Some of the changes follow regular developmental patterns in a society and others are brought about by unpredictable events, these transformations over time resulting in a varying capacity to meet basic household needs. In Chapter 4 of this thesis, I examine in detail how the demographic composition of the household and the position of its members in the life course shape villagers' drought-coping strategies.

Ethnicity

China has 55 officially recognized ethnic minorities, alongside the Han[8] majority. In the 1950s, the government started a country-wide program and sent thousands of researchers to survey the population in order to identify and recognize their ethnicity. The work lasted decades and resulted in the particular categories in use today. Since then, the officially designated ethnic categories have played a significant role in people's everyday life. Everyone is assigned one of the 56 ethnic identities and being a member of a recognized ethnic minority in China implies a set of statuses somewhat different from that of Han citizens (Hannum and Wang 2010, 4).

Chinese discourse often refers to ethnic minorities as the "marginal" members of the nation; this is because for complex social, political and historical reasons, ethnic minorities are more likely to reside in the interior western parts of the country and in more isolated, remote and underdeveloped villages. In certain parts of China, ethnic minorities constitute a much larger proportion of the population than the national share of 8 percent.

[8] The Han are an ethnic group constituting approximately 92 percent of the population of Mainland China. They are also the largest ethnic group in the world. There is considerable linguistic, cultural, and social diversity among the Han, mainly due to thousands of years of immigration and assimilation of various ethnicities.

For example, according to the 2010 Population Census of China, in Yunnan, the ethnic minority population accounts for nearly 34 percent of the total population.[9] The proportion is even higher in Xinjiang and Tibet, with ethnic minorities accounting for about 60 percent and 92 percent of the provincial populations respectively. These areas tend to be poorer than the national average.

With the intention of improving ethnic relations, a growing network of policies and laws have been designed to advance the economic interests of historically disadvantaged ethnic groups.[10] Those classified as belonging to a minority have, in recent decades, benefited from some preferential policies such as concessions in university entrance examinations, exemption from the more rigid population policies and special economic assistance including tax relief.

Located in the southwest, Yunnan is known as the most ethnically diverse region of China. Along with the majority Han Chinese, there are 52 ethnic minorities living in the province and 15 of them are peculiar ethnic groups to Yunnan (NBS 2012). Many ethnic minorities in Yunnan live primarily in mountainous, rural areas, far from any township, with even weaker infrastructure than Han villages. On the one hand, this suggests that they are likely to suffer more from natural hazards due to their marginalization and poverty. On the other hand, their vulnerable position and some advantageous policies toward minority groups may mean that they gain more attention and help in disaster mitigation than some of their Han counterparts. Ethnic minorities are also viewed as possessing unique and valuable indigenous knowledge. In recent years, more and more Chinese anthropologists have focused on the local disaster management knowledge of minority ethnic groups (e.g., Li 2012; Ye 2012). Consequently, analysing the intersection of ethnicity and other social factors in drought can provide a richer and complex approach, which examines how specific positions and identities are constructed, interrelate and affect each other in particular contexts, thus, contributing to the literature in the fields of both disaster studies and studies of ethnic relations.

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[9] This figure and the figures of Xinjiang and Tibet are calculated based on census data, available on the website of NBS http://www.stats.gov.cn/tjsj/pcsj/rkpc/6rp/indexch.htm

[10] In some areas, especially Tibet and Xinjiang, much more coercive policies aimed at tightening control over particular ethnic groups have also been introduced (e.g., Dwyer 2005; Hillman 2008; Singh 2009; Chou 2012).

In the ethnographic fieldwork upon which this thesis is based, I purposefully selected Chuxiong Prefecture as one of the field sites to reflect variation by ethnicity. Over 35 percent of Chuxiong's inhabitants are ethnic minorities, and nearly 80 percent of its ethnic minority population belong to the Yi ethnic group (Editorial Committee of Chuxiong Chronicle 2016, 370). With a population of 8 million, Yi is the seventh largest of the 55 ethnic minority groups officially recognized by the People's Republic of China. The Yi people live primarily in mountainous, rural areas of Sichuan, Yunnan, Guizhou, and Guangxi. In my fieldwork, I compared Han and Yi communities in the prefecture, in order to understand how ethnicity shapes local responses at different levels.

However, I found no evidence that Yi villagers are more concerned about drought than Han villagers. They also did not gain more attention or help in disaster mitigation than their Han counterparts due to their ethnic identity. The different coping strategies that Yi and Han villagers have drawn upon during the drought are more a reflection of other aspects of inequalities, such as unequal access to developed infrastructure and different types of local economy rather than ethnic difference. Within the Yi and Han communities, inter-household and intra-village differences are more obvious than ethnic differences. Consequently, in this thesis, I say little about ethnicity. Instead, I mainly focus on other forms of inequalities and differences, and examine how these forms of inequality shape people's experiences of and responses to drought.

2.2 A multi-layered framework

I further develop a multi-layered framework, which examines different social institutions and relations operating at different levels of society. This is a response to one of the drawbacks of current disaster studies focusing on vulnerability analysis; that is, the ambiguity of the unit of analysis. In most existing literature, factors which contribute to disaster vulnerability are identified and discussed without consideration of analytical level or are examined at only one level of the society. This not only runs the risk of oversimplifying the impact of certain factors in shaping vulnerability, and therefore, reinforcing the current stereotyping and marginalization of certain groups of people, but also is likely to lead to a failure in identifying and interpreting some other factors which

contribute to vulnerability. To overcome this drawback, in this thesis, I draw on ethnographic fieldwork to examine the social institutions and relations, which shape people's responses to, and experiences of drought at the level of the community, that is, the village; the household; and the individual.

Disaster vulnerability is rooted in situated histories of particular people and places (Faas 2016) . The subjects of this research live in rural villages. The administrative system in China comprises a hierarchy of authorities. Under the central state, in descending order, there are province, prefecture/municipality, county and township. Officially speaking, villages are not part of the state bureaucracy, but instead practice villager self-governance.

In reality, there are different types of "villages." The administrative village (*xingzheng cun* 行政村) serves as the unit of self-governance, and the village committee is the primary mass organization of self-government. However, village governance is closely integrated into a hierarchical system of governance dominated by the Communist Party from the village all the way up to the national level. Village committees are led by the village Communist Party branch and the township Party committee and Party committee above them. Members of the village committees[11] are supposed to be elected by villagers in direct elections, and members of the village Party branch are expected to be elected by villagers with Party membership. In some locations, including Yunnan, there is a high degree of overlap in personnel between these two organizations. An administrative village typically encompasses a series of small groups (*xiaozu* 小组), which were the production teams under the former collective system. Each small group also has a head, elected, at least in theory, by villagers.

In my field sites, the administrative village cannot be categorized as a "community" other than in a purely administrative sense, as the essential characteristics of community are the close social relations and sense of belonging among people (Bradshaw 2008, 6). During the course of my fieldwork, I found that rather than attaching to an administrative village or small group, rural residents tend to develop

[11] It is worth to note that members of village committee are not members of the civil service, but villagers often use the term "village cadres" (*cun ganbu* 村干部) to refer to either to all those appointed or elected to positions of governance in the village or to those receiving a regular payment for their work in governing the village (see Jacka and Wu 2016).

their sense of belonging in their natural villages (*ziran cun* 自然村), a clustered human settlement that develops around a group of people living in a particular area for a long time. When people use the term "our village" (*women cun* 我们村) they usually refer to the natural village rather than the administrative village or the small group.[12]

This can be explained by the geographic characteristics of Yunnan villages. Situated on the Yunnan-Guizhou Plateau, 84 percent of land in the province is classified as mountains, 10 percent as plateaux and only 6 percent as basins (Yunnan Provincial Bureau of Statistics 1996, 6). It is very common to find administrative villages consisting of small natural villages scattered around large mountain areas, and sometimes, walking from one natural village to its nearest neighbor in the same administrative village takes a few hours. Therefore, great variations may exist between these natural villages within the same administrative village. For example, the boundaries between ethnicities and lineage groups more usually coincide with the boundaries between natural villages rather than with the boundaries of administrative villages or small groups. Variations in type of economy due to different natural and geographic characteristics are also apparent among different natural villages.

These differences further shape villagers' perception of their relations with village cadres and their neighbours. Similar to the findings of Jacka and Wu (2016), informants from my research villages generally perceived administrative-level cadres to be far removed from themselves and therefore, had little contact with them, interacting more frequently with cadres within their natural villages.

Taking into account these factors, I selected the natural village rather than administrative village or small group as the unit of analysis to explore the social relations and institutions that shape people's responses to and experiences of drought at the community level. At the same time, I examine conflict and cooperation in drought mitigation between small groups, natural villages, administrative villages and governments at higher levels. To distinguish the three types of "village community,"

[12] As a province with relatively low population density, in Yunnan, an administrative village is usually comprised of several natural villages, and each natural village is comprised of small groups. In some cases, small groups and natural villages overlap, and in others, there are several small groups in one natural village. A small group generally has a population of 20 to 50 people. In more densely populated areas elsewhere in the country, a natural village with a large population is recognized as an administrative village, and in some cases, a large natural village can be separated into several administrative villages.

unless otherwise stated, in this thesis, I use the term “village” for administrative village and “hamlet” for natural village, and also make reference to “small groups” (*xiaozu*).

The idea that community is associated with social bonds and relations and some measure of place-bound shared interest does not mean it is a unit of collective decision-making, unified action or even collective responsibility (Bradshaw 2008; Bruun and Olwig 2015). Within the community, different households subjected to the same rainfall regime may experience and respond to drought in radically different, even opposite, ways.

Consequently, I examine inter-household variations in response to drought. The focus on the household is particularly appropriate in this study, because it is widely recognized that in rural China, the household is understood to be a social and economic unit, in which people hold property in common, live together in the same house except for temporary absences, and share and divide labour among themselves to keep life going (Fei and Zhang 1945, 11). More generally, a concentration on the household is especially useful for bridging the gap between macro and micro worlds, permitting the examination of differential responses to general structural conditions, as well as the analysis of changes specific to subgroups of the population (De Haan and Zoomers 2005, 28–29).

Again, my focus on the household does not mean that I view the household as a unitary actor. On the contrary, within the household, members may not share the same perception of their situation and their goals may differ. Consequently, I look within the household and draw on the concept of “householding”—the strategies and processes through which household create and reproduce themselves (Douglass 2006; Jacka 2012, 2)—as a starting point to explore how unequal power relations between household members of different genders and ages shape people’s experiences of and responses to drought. My understanding of “householding” is further elaborated in Chapter 5.

3. Methodology

As a normal part of the climate in virtually all regions of the world, drought can be defined as a deficiency of precipitation over an extended period of time, usually a season or more, that results in a water shortage for some activity, group, or environmental sector (Habiba et al. 2012, 26–27). Unlike other so-called natural hazards or disasters, it is difficult to determine the onset and the end of drought. Consequently, most of the time, the effects of drought are cumulative, multiple (economic, social, and environmental) and prolonged.

In order to understand these complex effects of drought and how villagers perceive and respond to them, it is best to engage in people's daily life, to observe and interact with them over a long period of time. Consequently, I conducted ethnographic fieldwork for this thesis, which allows for a slower accumulation of evidence and understanding and for key insights to arise unexpectedly, during experiences.

I conducted comparative studies. My fieldwork was undertaken in Chuxiong Prefecture and Qujing Municipality, which were hit hard by seasonal and prolonged drought between 2009 and 2014. Five field site hamlets were selected to explore people's experiences of and responses to a drought in local contexts. The process of fieldwork site selection and detailed information about each hamlet are provided in Chapter 2.

Map 2 Chuxiong Prefecture and Qujing Municipality

Source: Adpated from map originally drawn by Australian National University GartoGIS

I selected two hamlets to conduct in-depth research, one in Chuxiong and one in Qujing. In each hamlet, I first established good relations with village cadres. This not only cultivated approval to enter the community, but also offered me access to official data at different levels, from small groups to hamlets and administrative villages. Moreover, during the fieldwork, these good relations with village cadres allowed me to attend some important village occasions, including two household head meetings and one Party member meeting. Through attending these meetings, I gained valuable information. More importantly, participating in these occasions provided me with opportunities to establish contacts with other villagers. In addition, I was invited by cadres to travel with them, and therefore, was able to visit hamlets other than my field site within the same administrative villages, which greatly enriched my comparative studies.

After establishing rapport with village cadres, the next step was to understand what activities people engage in, and how and why they do what they do. To achieve these goals, in these two hamlets respectively, I found a host family and stayed among the

villagers being studied. In Chuxiong, I lived with the family of the hamlet head, while in Qujing, I lived with an ordinary household.

Members of my host families provided great help in the early stages of my fieldwork. Through daily interactions with them, I recorded village seasonal calendars and daily household routines. This basic information enabled an understanding of the overall circumstances of the villages and hamlets. My host families also introduced me to their close relatives and friends within the hamlets. This not only paved the way for my later interviews, but also partially revealed the social relations between villagers. I also did village transect walks[13]in the company of my host families. There was a great demonstration of villagers' local knowledge during this period of my fieldwork. Without the cooperation of villagers, I would not have been able even to find the location of households, water facilities and landholdings.

Once I was familiar with the layout of the hamlets, I conducted household surveys. All households in each of the two hamlets were surveyed (31 households in Chuxiong and 58 households in Qujing). The survey data supplemented official village documents relating to general information about these hamlets, including natural environment, demography, land, infrastructure, and livelihood strategies. More importantly, the household surveys provided me with opportunities to interact with different community members. The survey questionnaire (in Chinese, with English translation) is provided in appendix. Basic information about households and individual villagers obtained from this survey is summarised in Chapters 3 and 4. The data helped me to find appropriate households and specific informants, roughly representative of different economic and social positions, with whom to conduct semi-structured qualitative interviews.

The interviews involved listening directly to villagers and exploring with them their own perspectives on and responses to the drought. I compared, in particular, family members' workloads, the visibility and perceived value of their labour, their access to resources (such as land, water and credit), their involvement in decision-making and their perspectives on social norms at individual, household and community level. To appreciate people's agency, I examined the livelihood strategies that households adopted both before and during the drought. However, rather than just

[13] During the walks, I visited all the locations and facilities, which local residents perceived as "important" and posed questions to my informants. In this way, I gathered basic information about the local environment and elicited villagers' opinions on a range of issues.

focusing on strategies for achieving economic or material objectives, I also put emphasis on the strategies through which people nurtured emotional bonds with others. While the interviews were framed around semi-structured questions, there was free interaction between the informants and myself, allowing us to explore a broad range of issues and topics.

Apart from in-depth studies, I also conducted short-term fieldwork in three hamlets in Chuxiong to collect supplementary data for comparative analysis. In each hamlet, I interviewed village cadres to obtain village information relating to natural and geographical environment, demography, land, infrastructure, livelihood strategies, major stress during the drought, collective response and access to external drought relief aid. I also relied on the cadres or my local contacts to select three households in each hamlet to conduct semi-structured interviews.

It should be mentioned that despite my identity as a "native" Chinese anthropologist, fitting in and being accepted as a participant observer was an ongoing challenge in the field. I tried my best to be an active member of the community during the entire fieldwork process. My fieldwork started in winter, in the agricultural slack season, when it was easier to find and interview villagers at home. In addition to local residents, people who engage in migrant work (mainly adults aged under about 50 years old) returned to the village and were available for interviews during the spring festival holiday period (January to February). At that time, participation in events such as weddings and pig-slaughtering meals provided me with opportunities to interact with local residents and establish rapport. I also tried to understand the specific social meanings attributed to these events by those involved. After the coming of spring, most villagers were busy with their farm work, so I joined them in the fields to talk and sometimes worked with them.

In the periods between my trips to the hamlets, I sought information about drought mitigation measures by conducting several interviews with staff from government departments from the township to the municipal and prefectural levels responsible for drought relief; members of the township and county women's federation; local police officers; and the staff of two NGO groups. Interviewing this diverse cross-section of people allowed me to explore different perceptions and actions relating to the same issue. Meanwhile, I also collected archival materials, such as local annals (at provincial,

prefectural and county level) and other local official documents, which provided historical information about the field sites. I examined written material from organizations engaged in drought mitigation activities, including county-level government departments such as the Office of Drought Relief, the Tobacco Monopoly Bureau and NGO groups to get information about outside perspectives on local communities, drought and drought mitigation.

I had two rounds of fieldwork in total. The first stage of my fieldwork was between November 2014 and May 2015. During this period, I spent five months conducting ethnographic fieldwork in rural Yunnan (two months in each of the two hamlets where I did in-depth studies and roughly one month in the other three hamlets) and about one month collecting archive materials as well as interviewing employees from government departments and NGOs. After finishing the first draft of the thesis, I revisited the two hamlets in which I had conducted in-depth studies in September 2016. I discussed some of the research results with my key informants to get feedback and collect further information.

Altogether, I conducted approximately 45 hours of semi-structured interviews with 87 ordinary villagers, and another 40 hours of in-depth interviews with 27 village cadres and key informants. With the permission of the informants, I audio-recorded some interviews. In others, I took detailed written notes. All interviews were conducted in local dialect and Mandarin Chinese. The demographic details of interviewees in each village and hamlet are summarised in Table 1.1.

Table 1.1 Demographic details of interviewees (N=114)

Gender	Women		Men	
	65		49	
Age group	Young (18-40)	Middle-aged (40-65)	Old (over 65)	
	37	47	30	
Position	Villagers	Village cadres	Government employee	NGO staff
	87	15	5	7

4. Chapter outline

The current research is designed to investigate the social underpinnings of disasters associated with natural hazards through an examination of people's responses to and experiences of a drought in rural China. I am particularly interested in knowing the processes through which institutions and their associated power relations shape local responses at community, household and individual level. Chapter 2 provides a full picture of the villages and hamlets where I conducted fieldwork for this research. I summarize the characteristics of the hamlet economies and explore how and why communities have chosen specific livelihood strategies within particular physical and institutional constraints. Chapter 3 focuses on community-level factors shaping the experiences of and responses to drought. I compare infrastructure and access to external drought mitigation resources. I demonstrate how technical mitigations, which are supposed to reduce disaster intensity or prepare people for natural hazards, are themselves not socially neutral and they must not be examined in isolation from local institutions and power relations. In Chapter 4, I shift away from community-level factors to focus on how household factors shaped people's responses to and experiences of drought. Particular attention is given to the impact of various forms of intra-household inequality and to variations between households at different stages of their life course. I also examine interactions among households within the same community. Chapter 5 moves on to the individual level. I look within the household and draw on the idea of "householding" as a starting point from which to assess the impact of gender and life course on individuals' responses to drought. I divide householding strategies into

different categories, relating to drought responses in agriculture, everyday social reproduction and non-agricultural employment. The categories are not exclusive but are useful for analysing the dynamics of responses to drought. Chapter 6 concludes with a summary of my main findings and argument.

Chapter 2 The field site hamlets

This chapter provides a portrait of my field sites. I first provide background information about the drought in Yunnan Province and briefly outline the general social and economic features of Yunnan and the selected prefectures. I then introduce the five hamlets, which I selected to explore people's experiences of and responses to drought.

1. Drought in Yunnan

People living in Yunnan suffered severe drought between 2009 and 2014. The drought was depicted as the longest and most intense of any drought recorded in local meteorological history (since 1961) (Yunnan Yearbook for Disaster Reduction Editorial Committee 2012, 99; 2014, 101). Villagers' perceptions of the drought were generally consistent with the official meteorological record, which identified 2009 to 2011 as the driest period, with nearly 50 percent less annual rainfall than normal (Ibid. 2012, 147). Informants from all the field site hamlets generally agreed that they began to receive less rainfall in 2009. The situation intensified from 2010 to 2012, and was alleviated in 2014 as the rainfall returned to normal.

Located in the southwestern frontier region of China, separated from the basins of the great rivers by chains of mountain ranges, Yunnan historically has been relatively inaccessible to outsiders. Today, it is one of the least industrialised and least economically developed provinces of China.[14] In 2014, Yunnan' GDP ranked 23 among the 31 provinces of China.[15] The region maintains a strong agricultural focus. Roughly 65 percent of the total population reside in rural areas (NBS 2012) and rely on agriculture for at least part of their cash income and subsistence needs. Household-based farming is the dominant form of agricultural production. Large numbers of people use household labour to till small, often scattered, plots of contracted

[14] As a large country with an economically and culturally diverse population, China is characterized by large regional variations in both topography and socio-economic development. Overall, in terms of the economic and social development mode and speed, the eastern region has the highest level of development, followed by the central region, and the lowest level of development is found in the western region.

[15] The figure is based on data from the website of NBS.

land, and rely heavily on agricultural production for their livelihood. During the drought, nearly 3 million hectares of cropland as well as over 6 million head of livestock were severely affected (Yunnan Yearbook for Disaster Reduction Editorial Committee 2012, 99), which greatly disturbed local people's everyday lives.

In addition to its strong agricultural focus, Yunnan's comparatively weak infrastructure also exacerbated the suffering caused by drought. In the period under study, most roads connecting interior villages were (and still are) badly paved and unsuitable for vehicles. Moreover, in many mountainous villages, water conservation facilities have long been neglected and in disrepair, which means that there were (and are) no supplementary water supplies when rainfall is low. The driest period occurred between 2009 and 2011. During that time, 564 reservoirs as well as 1,119 wells dried up. Meanwhile, 25 million people were affected and among them, 11.67 million faced a shortage of drinking water (Yunnan Yearbook for Disaster Reduction Editorial Committee 2012, 99–104).

Within the province, Chuxiong Prefecture and Qujing Municipality were two of the most affected sites. According to the Yunnan Yearbook for Disaster Reduction, 80,000 people in Chuxiong and 292,700 people in Qujing were affected by the seasonal and prolonged drought (Editorial Committee 2012, 110; 2014, 111).

The full name of Chuxiong is Chuxiong Yi Autonomous Prefecture. It is located in central Yunnan, with an area of 29,256 km^2 and a population of 2,636,300 (Yunnan Provincial Bureau of Statistics 2014, 346). The population of ethnic minorities in Chuxiong amounts to 934,900, of which nearly 80 percent (754,500) belongs to the Yi ethnic group (Editorial Committee of Chuxiong Chronicle 2015, 370). Qujing Municipality is a prefecture-level city in Eastern Yunnan. It is the second largest city by population in the province, with 5,974,000 inhabitants (Yunnan Provincial Bureau of Statistics 2015, 346). The majority Han ethnic group accounts for over 90 percent of the total population.

Both Qujing and Chuxiong have been designated as districts for tobacco production in Yunnan. Qujing is the largest prefecture-level tobacco production base in China, contributing 20 percent of the province's total production of tobacco leaf and about 8 percent of the nation's total production (Yang 2013, 62). In addition, historically, Qujing

has been valued for its mineral resources, in particular coal, and its vast electricity-generating capacity. It is an important location for industrial raw materials and industry in Yunnan. In 2014, the industrial added value in Qujing accounted for 19 percent of the provincial total, ranking it second among all the 16 municipalities and prefectures in Yunnan (Editorial Committee of Qujing Chronicle 2016, 63). Over the last two decades, local industries have also developed rapidly. Industrial zones as well as small and medium sized factories have been established in counties and townships, providing numerous plenty of off-farm employment opportunities to rural residents.

Chuxiong is the second largest tobacco production base in Yunnan and the third largest base in China. Compared with Qujing, industrialization has been limited. Over the last three decades, Chuxiong's state rural development plans have focused on introducing cash crops to rural households in order to raise their incomes.

2. The selection of field site hamlets

Field site hamlet selection was a multi-phase procedure. I first did archival research in Yunnan Provincial Library. My archival work included the study of (1) written material from organizations engaged in drought mitigation activities, including government departments, enterprises, public institutions (such as public universities and hospitals), and NGO groups; (2) local media reports on the drought; and (3) local chronicles, yearbooks and official documentary materials which provide historical information about the region. Based on information obtained from these sources I visited a number of townships and villages to find appropriate field sites through interviewing local cadres and by making my own observations. Then, I compared information about geographical location, economic structure and demographic change to narrow down target villages. Finally, four hamlets in Chuxiong and one hamlet in Qujing were selected for comparative ethnographic study.

The five field site hamlets were chosen for both practical and analytical reasons. Practically speaking, in these hamlets, I was able to draw on personal and family connections to get authorization to conduct field research and establish relationships and rapport with both community leaders and residents. After I decided to conduct my

fieldwork in Chuxiong Prefecture, I asked a close friend who was born in Chuxiong to help me with the selection of hamlets. With support from her and her family, I was able to do research in her relatives' villages and hamlets. I also received help from a migrant woman, whom I met during NGO voluntary work before I started my MPhil in Australia. She introduced me to her hamlet, which was severely affected by the drought. In Qujing, my host family was an old friend of my parents. I've been visiting this hamlet since childhood. This provided a vantage point from which to examine the changes and challenges villagers confronted during the drought. Analytically, my primary concern was to ensure that field site hamlets represented the range of geographic, social and economic variations in Yunnan Province. On the one hand, each of the selected hamlets matched the requisite characteristics of being "typical" rural hamlets, in the sense that they share a broadly similar history; evince social and economic trends common across Yunnan; and have relatively stable populations whose members have deep roots in their communities. On the other hand, these hamlets differed in their ethnic composition, degree of isolation and type of economy. In the period under study, two hamlets (Walnut Hamlet and North Hamlet) were ethnic minority hamlets in Chuxiong, with 90 percent of the residents belonging to the Yi ethnic group.[16] The other three (Shijia and Silk Hamlet in Chuxiong, Baijia in Qujing) were Han hamlets. Two hamlets (North Hamlet and Walnut Hamlet) were located in upland areas far from any local political centre or market town. The others (Shijia, Baijia and Silk Hamlet) were physically close to at least one township. All the field site hamlets had a strong agricultural focus. Tobacco production was the most important source of livelihood in Shijia, Baijia and North Hamlet, accounting for over 50 percent of their total household income.[17] In the other two hamlets, walnut growing and silkworm cultivation were the primary sources of livelihood. Despite the farming-oriented economy, villagers from Baijia, the field site in Qujing, were also engaged in local off-farm work, as workers in local cement factories and quarries. In addition, as elsewhere across western and central China, villagers in all the study sites participated in migrant work. Most single and married adults aged from 18 to 40

[16] The figure was provided by village committees.
[17] The figure was calculated based on data from my household survey.

migrate out and seek waged jobs in urban centres. Over 70 percent of them were long-term migrants[18] doing construction and factory work within the province.[19]

The general characteristics of the field site hamlets are presented below.[20] From November 2014 to May 2015, I first conducted in-depth research in two hamlets, Shijia and Baijia, which had a relatively small population, and then collected supplementary data in the other three hamlets. In the next section, I give a fuller picture of Shijia and Baijia to illustrate the different and common features of all the hamlets.

2.1 Shijia hamlet

One of the hamlets in which I conducted in-depth studies is Shijia in Lotus County (a pseudonym), Chuxiong Prefecture. It is a mountainous hamlet 2,020 m above sea-level. The hamlet is 2 km from the location of the village committee and 9 km from the county seat—the city in which the headquarters of the county government is situated. A narrow and unsurfaced road accessible to motor vehicles was built in the early 2000s to connect the village committee with the county seat. This road was then paved in 2012, but is still not wide enough for two cars to pass each other. The road ends at the gate of the village committee office, and beyond is an unsurfaced, dirt road leading into Shijia hamlet. This road is normally very dusty, but on rainy day turns into a muddy stream, almost impassable to cars and motorbikes.[21] There is no public transportation directly to the hamlet. In 2014, over 50 percent of households in the hamlet owned at least one motorbike but only two households owned cars. Villagers with no access to these forms of transportation usually depend on village cabs. The owners of the cabs are local residents, who use their private vehicles to provide a shuttle service between villages and hamlets in the area and the nearest market place or schools. Since these cabs are generally unregistered, the problem of overloading is very serious.

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[18] In this thesis, I define long-term migrants as those who spent six months or more of the preceding year away from home.

[19] The figure was calculated based on data from my household survey.

[20] The variation in characteristics by hamlet is summarized in table 3.1 Chapter 3.

[21] This administrative village consists of 7 hamlets, dispersed through the mountains. The farthest is 6 km away from the village committee office, which takes 2 hours on foot. All the 7 hamlets are connected with the village committee office and connected with each other by unpaved roads, most of which are inaccessible to motor vehicles.

Houses are scattered around the hamlet and connected with each other by steep mountain paths. Nowadays, 70 percent of the houses are brick with tiled rooves, while the rest are still built from clay pounded into large blocks.[22] In 2014, village records placed the population at 106 people in 31 households.[23] All the residents are Han. The 31 households belong to two patrilineal clans. Twenty-two households belong to the Shi Clan, and the rest belong to the Yang Clan. Since the two families have long been connected by marriage, according to villagers, they are all relatives.

The hamlet is 10 km away from the nearest surface water source—a river. It is located in a semi-humid region[24] and has an average rainfall of 750 mm per year. However, since 60 percent of the rainfall is concentrated between April and August, seasonal shortages of water have always been a concern for villagers. To make best use of the limited water resources, villagers depend on groundwater for domestic purposes and collect rain water for livestock and the irrigation of farmland. The main source of drinking water is a collective hamlet well with a depth of 12 m, while a collective hamlet reservoir (length 37 m, width 20 m and height 3 m), is used for agricultural production. Both facilities were initially built in the 1950s, and have lain in disrepair for many years. The reservoir has suffered from severe leakage problems, and the steps leading to the well have long been in disrepair and are covered with green moss. Villagers complained that every time they fetch water from the well, they run the risk of falling. The hamlet has not installed piped water. Households buy their own pump to extract water from the collective well and reservoir, store the water in private water cisterns[25] and connect the cisterns with pipes to provide access to tap water at home. The pumps are mobile and can be moved from one cistern to another.

There are no irrigation channels in this hamlet. Shijia covers a total 2,505 mu or approximately 167 ha of land, but of this only 113 mu or 4.5 percent is categorized as arable land.[26] There is an average of 1.05 mu cultivated land per person in the hamlet; much less than the provincial average of 2.05 mu and less than the national average of

[22] The figure was based on data provided by village committees.
[23] Population figures of all the field site hamlets were provided by village committees. Unless otherwise stated, they are for 2014.
[24] Places with an annual rainfall between 400mm to 800mm are classified as semi-humid regions. See Li et al. 2016.
[25] The capacities of household water cisterns in Shijia range from 15 to 30 m^3.
[26] Land figures of all the field site hamlets were provided by village committees. Unless otherwise stated, they are for 2014.

1.52 mu.[27] Up and down the steep hillsides far from the residential areas and water sources, land is dispersed in several small plots. This greatly constrains the development of collective irrigation systems. Irrigation is organized independently, with villagers building small-scale water conservancy facilities, such as household water cisterns, on their farmland.

Tobacco is the predominant crop in Shijia, generating the largest share of agricultural income. According to the villagers, the history of tobacco production in their community dates back to the 1940s, but large-scale production did not begin until the 1980s.

In fact, the profitability of tobacco production in this small hamlet is closely related to the general development strategies of Yunnan Province. Tobacco production was first introduced to Yunnan in the 1910s. It is true that Yunnan's natural conditions are suitable for growing and processing tobacco. However, they are not necessarily superior to those of many other tobacco-growing provinces (Eng 1999, 323). In the early years, facilities for tobacco processing and cigarette manufacturing in Yunnan were technologically much poorer than those of the then leading cigarette factories in Shanghai and Henan (Editorial Committee of China Tobacco 1993, 517–518). However, since the 1980s, national and local governments have taken a series of measures to promote and integrate tobacco growing and manufacturing, turning Yunnan into the largest tobacco production base in China. This unusual speed of development is closely related to the capacity of tobacco to contribute revenue to the government coffers.

As the world's largest tobacco producer and consumer,[28] China's tobacco industry was a major contributor to national income and led all the industries in China in profit and tax remittance in the late 1980s and early 1990s (Zhou 2000, 117). Since then, revenues collected from the tobacco industry have declined, but in 2015, still accounted for about 7 percent of the total government revenues for the entire country (Huo et al. 2016).

[27] The figures are from Communique of The 2nd National Land Survey, available on the website of Ministry of Land and Resources of the People's Republic of China http://www.mlr.gov.cn/tdzt/tdgl/decdc/dccg/.

[28] China is the home to one quarter of the world's smokers and one-third of the world's cigarettes are consumed in China (Cheng and Ngo 2014, 225).

With limited industrialization and foreign investment, local governments in Yunnan have long relied heavily on tobacco as a source of revenue (Eng 1999; Dai 2013; Cheng and Ngo 2014). In the 1990s, revenue from the tobacco industry accounted for 75 percent of the total provincial income (Zhou 1996, 7), and by 2015, it still constituted over 40 percent of the total provincial revenue.[29] Meanwhile, the rapid development of the tobacco industry in Yunnan has also coincided with the progress of fiscal decentralization since the 1980s, which expanded the fiscal authority and responsibility of local governments and allowed them to keep a substantial proportion of revenue.[30] Consequently, in order to maximise and stabilise government revenue, from the 1980s to the 1990s, villagers in different part of Yunnan, where natural conditions are suitable for tobacco growing, were pushed very hard by governments from the provincial to township level to grow tobacco. Among the field site hamlets, Shijia is not the only one engaged in tobacco production. In fact, during the past three decades, tobacco is or used to be the main crop income generator for all the field site hamlets.

In principle, tobacco growing is based on an agreement signed by mutual consent by household heads and the county tobacco company. However, between the 1980s and early 1990s, farmers had little choice but to grow tobacco if their farmlands had been included in a plan drawn up by local governments. Local officials exercised their influence over villagers in any way possible, since there was a close tie between tobacco production and their financial and career rewards. Local farming households were required to use their most fertile land for growing tobacco leaf and had much of their labour power engaged in tobacco production to meet the assigned quotas. In Shijia, villagers abandoned rice production in the early 1990s, and adapted the paddy fields for tobacco production. The advantage farmers gained from tobacco production at that time was in having guaranteed sales. Tobacco corporations purchased all the tobacco leaves cultivated by farmers, and this further encouraged them to increase production (Tobacco Monopoly Bureau of Yunnan Province 2000).

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[29] The figure was calculated based on data from the website of NBS, available on http://data.stats.gov.cn.

[30] In 2005, the central government abolished almost all agricultural taxes in order to reduce the financial burdens on farmers. However, the tobacco leaf tax, classified as a local tax, was an exception and has remained at 20%. See 中华人民共和国烟叶税暂行条例 (Interim regulations of Tobacco Leaf Tax of the PRC), available on the website of The Central People's Government of the PRC http://www.gov.cn/zwgk/2006-05/10/content_277505.htm.

However, the overproduction of tobacco leaves became acute as the supply of tobacco leaves exceeded cigarette demand. To address this issue, a dual control policy (*shuangkong zhengce* 双控政策) was introduced in 1997. Under the policy, the tobacco planting area and volume of production are strictly controlled according to contracts. Farmers are required to limit their planting area, and tobacco corporations are not allowed to purchase any surplus tobacco leaves beyond the amount specified in the contract. Meanwhile, tobacco leaves are sorted into numerous grades, based on quality, with a large price differential between the grades. As the grading process is based on the subjective judgement of the company's staff, it is very common to hear villagers complain that the price of their products is more closely related to their personal relations with staff working at the tobacco station than the quality of the leaves. Informants described their experience in tobacco production as "kneeling to grow tobacco and bowing to sell it (*ketou zaiyan, zuoyi maiyan*磕头栽烟，作揖卖烟)." Despite the unfavorable selling price and the unpleasant selling experience, and despite a serious shortage of irrigation water due to drought, farmers are reluctant to abandon their tobacco field because the market risk is relatively low under the monopoly system. During my fieldwork, households in Shijia still relied heavily on tobacco production for their livelihoods. Revenue from tobacco production accounted for about 60 percent of the household cash incomes.[31]

Apart from tobacco, crops grown in Shijia include maize, green beans, rapeseed and other vegetables. Pepper and walnut trees are grown on the mountainous land. Animal husbandry, in particular goat raising, is another source of cash income for many households, contributing between 20 and 50 percent of household cash incomes.[32] In 2014, more than half of all households raised goats. Meanwhile, almost every household raises several pigs a year. They consume at least one of them each year, curing or sousing the meat after slaughtering. The rest are sold. Each household also raises some 6 to 7 chickens for family consumption. Donkeys and mules are raised for carrying heavy loads.

[31] The figure was calculated based on data from my household survey.
[32] The figures were calculated based on data from my household survey.

2.2 Baijia hamlet

Another hamlet where I conducted in-depth study is Baijia in Bronze County (a pseudonym), Qujing Municipality. It is also a mountainous hamlet, 1,872 m above sea-level. There are 58 households and 257 villagers in Baijia. All belong to the majority Han ethnic group. Although it is a multi-surname hamlet with 5 clans, one clan—the Bai—makes up the majority; 41 of the 58 households belong to this clan.

The hamlet is 7 km away from the village committee office, but it is relatively close to two townships, both of which are less than 8 km away. More importantly, concreted motor roads connecting the hamlet with the townships were constructed in the 1990s, and were broadened and re-paved in 2005. This greatly improved villagers' mobility. Private transportation has been developing more rapidly in Baijia than in Shijia. In 2014, over 80 percent of households owned at least one motorcycle and about 50 percent own at least one car.

The annual rainfall in the area is about 1,000 mm. There is a river running through the hamlet. Inhabitants mainly depend on the river for animal husbandry and irrigation, pumping water from the river and storing it in a circular reservoir, with a capacity of 50 m^3. The hamlet head takes responsibility for managing the facilities and villagers are charged 10 yuan per household per month as electricity fees. Water for domestic use is obtained from two collective wells. Both are electric-mechanical wells with a depth of over 50 m. A piped water system was installed in the early 2000s and provides tapped drinking water to all the households within the hamlet. Ninety percent of the houses in the hamlet are constructed from brick. Houses in the residential area are next to each other, with several smooth concrete paths connecting them and stretching to the farmland.

Although located in a mountainous area, the farmland in Baijia is much flatter than in Shijia and is serviced by irrigation channels. However, land shortage has long been a concern for many households in the hamlet. In 2007, the provincial government built a new railway linking Kunming to Qujing, which cut across the hamlet and resulted in a reduction of its total arable land area. Of total area of 1,695 mu, currently, there is only 180 mu of arable land and 350 mu of mountain land in Baijia. The cultivatable land per person is 0.73 mu; notably lower than both the provincial and national average.

Apart from transport and water facilities, important infrastructure absent from Shijia can be found in Baijia. In the early 1990s, an international NGO funded the construction of a primary school in the hamlet. Although the school was closed in the early 2000s due to reforms in rural education,[33] the building remained and now functions as a public health clinic. There is also a grocery store in the hamlet.

Similar to Shijia, villagers in Baijia depend on tobacco production as their main source of income. Eighty percent of households in Baijia grow tobacco—an even higher proportion than in Shijia. Thirty percent of households also grow rice for family consumption. Other crops in the hamlet include maize, wheat and vegetables. Similar to Shijia, villagers in Baijia are also widely engaged in animal husbandry. However, only one household chooses animal husbandry (goats and chickens) as their main source of household income. The rest raise pigs and chickens for family consumption. Some water buffalos are raised for agricultural work (ploughing).

Local off-farm work is the next-biggest source of income in Baijia. In 2010, a provincial level industrial zone and also, the largest glass production base in Yunnan were established in the county city. Meanwhile, several cement plants and quarries are located in townships in the county. Therefore, it is very common for Baijia villagers, in particular men aged 30–50 years, to be employed in these local businesses. They generally work in the factory during the day, return home at night, and quit the job in the busiest agricultural seasons.

2.3 Other field site hamlets

Apart from doing in-depth studies in Shijia and Baijia, I also collected data in three other hamlets. All the hamlets come within the jurisdiction of the same township in Lotus County, Chuxiong Prefecture. I now outline the basic profiles of these hamlets, giving particular attention to how they differ from Shijia and Baijia.

[33] In 2001, the State Council issued *The Decision on the Reform and Development of Compulsory Education* (available on the website of Ministry of Education of the People's Republic of China http://old.moe.gov.cn//publicfiles/business/htmlfiles/moe/moe_16/200105/132.html), which explicitly requires the educational quality of rural schools to be improved by adjusting the locations of schools and integrating resources. Since then, a great many small primary schools located in remote villages have been closed down and merged into larger schools.

Two of the hamlets, North Hamlet and Walnut Hamlet, are located in mountainous areas, with over 90 percent of the residents belonging to the Yi ethnic group. North Hamlet is the most isolated field site. Located at the top of a mountain, 2,100 m above sea-level, it is 5 km from the village committee office and 23 km from the township. The steep mountain road linking the hamlet to the location of the village committee is totally inaccessible by cars, and barely accessible by motorcycles or tractors. There are 25 households with a population of 91 in the hamlet. The hamlet is very far away from any surface water sources. Drinking water is obtained from a 10 m deep collective well, which has been in disrepair for many years. There are no collective reservoirs, water pipes or irrigation channels in the hamlet. Villagers build water cisterns next to their farmland to harvest rain water for irrigation purposes. Tobacco production contributes the largest share of household income.

Walnut Hamlet is 2,025 m above sea-level. The hamlet is 4.5 km from the village committee office and is 14.5 km from the township. There are 47 households and 235 people living in the hamlet. Despite the long distance and rugged terrain, the road connecting the hamlet with the township is well paved. More surprisingly, even the intra-hamlet paths are in very good condition. Households in the hamlet depend on groundwater for domestic purposes. All the households have access to tap water through pipelines connected to the two well-functioning collective wells. A public reservoir and household cisterns have been built to facilitate irrigation. Villagers used to rely heavily on tobacco for generating income, but nowadays, walnuts are the dominant crop, generating the largest share of agricultural income.

As mentioned in the previous section, cash crops were introduced by governments at provincial, prefectural and county levels to farmers in Chuxiong as a strategy to promote their incomes. Informants from different field sites reported that, over the years, the strategy has shifted from promoting chestnuts to Chinese herbs, and recently, the crops promoted most have been walnuts in the uplands and mulberry trees for silkworm raising in the lowlands.

Walnuts have been grown for centuries in the mountainous area of Lotus County and had gradually developed into a distinguished variety. This local variety was identified as a “high quality export product” by the Ministry of Foreign Trade and Economic

Cooperation (MOFTEC) in 1983, and became a registered local trademark in 2009 (Editorial Committee of Lotus County Chronicle 2010, 68). As a local specialty, walnuts have been enjoying a stable market, and hence, have been an important source of income for many mountainous villages. Walnut Hamlet is one of them. In the mountain lands, local people have been growing walnuts for over 40 years. After an initial processing,[34] products are mainly sold to procurement stations in the local townships and county seat. In recent years, farmers have started to attract buyers from other provinces, who pay a premium price for their products. In 2012, villagers in Walnut Hamlet established a professional cooperative to further broaden sales.

In fact, walnuts are grown not only in Walnut Hamlet. Being considered an effective measure to boost the green economy, walnut growing has been greatly promoted by local governments. Over the last decade, prefectural and county governments have launched a series of campaigns to encourage upland farmers, including villagers in Shijia and North Hamlet, to plant walnuts. By 2014, the acreage of walnut trees in Lotus County reached 1.54 million mu (Editorial Committee of Lotus County Chronicle 2015, 72). The annual production was 2.1 ton and the total output value of walnuts reached 678 million yuan (Ibid.). Meanwhile, in 2012, pepper was also introduced by the county government in order to further raise farmers' incomes.

As with tobacco production, in order to accelerate the development of walnut and pepper growing, the county government sets quotas, and the responsibility for fulfilling the quotas is transferred to local authorities. Again, villagers are pushed hard to engage in walnut and pepper production, even though these cash crops may not be suitable for the local context. In Shijia and North Hamlet, despite the county government offering farmers free walnut seedlings, villagers complained that they are forced to grow unwanted crops, and have to bear the cost of grafting, pesticide and fertilizer by themselves. This increases their financial burden; a particular problem in dry years, when household incomes were severely eroded. Moreover, they cannot profit immediately from growing walnut and pepper trees, as it takes 10 to 20 years for a walnut or pepper tree to bear fruit.

[34] The initial processing steps include hulling, de-astringency and dehydrating.

Meanwhile, lowland villagers in Lotus County are actively involved in silkworm raising. One of the field sites, Silk Hamlet, is an example. Silk Hamlet is a Han hamlet 1,620 m above sea-level. It is connected to the township by a well-paved concrete motor road 5 km long. There are 107 households with a population of 411 in Silk Hamlet. Nowadays, 85 of the 107 households are engaged in silkworm raising.

Similar to walnut production, silkworm raising is a traditional industry in the research area. Located on the ancient southern silk road, Lotus County has a history of silkworm raising dating back to the Qing Dynasty (Editorial Committee of Lotus County Chronicle 1999, 205). In 1958, the county was recognized by the State Council for its remarkable output of silkworm cocoons (Agricultural Technology Extension Station of Yunnan Province 2013, 207). However, in the 1960s, large proportions of mulberry trees were removed and by the end of the 1990s, only 7,000 mu of mulberry trees were left (Ibid., 208). In 2007, silkworm raising was reintroduced to the area through a state program launched by the National Cocoon and Silk Coordination Office and the Ministry of Agriculture. The program, known as the "East-to-West Silk Industrial Restructuring (*dongsang xiyi* 东桑西移)," aims to further improve the silk industry in China by optimizing divisions of labour between provinces. Under this framework, technology-intensive work such as silk reeling, and semi-finished and finished product processing are assigned to traditional silk production bases in the coastal areas of East China, while labour and space-intensive work such as growing mulberry trees and raising silkworms is transferred from east to west. The western provinces of Shanxi, Yunnan, Gansu, Sichuan and Chongqing are identified as key provinces for production transfer. Within each province, certain counties are targeted for silkworm raising. By 2014, 30 of the 128 counties in Yunnan had been identified as key counties for silkworm raising (Editorial Committee of Lotus County Chronicle 2015, 97).

As one of the key counties, Lotus County has seen a rapid expansion of silkworm raising. By 2014, the area of mulberry trees in the county had reached 72,000 mu, 28 administrative villages were identified as key villages and over 15,000 households were involved in silkworm raising (Editorial Committee of Lotus County Chronicle 2015, 97). To encourage villagers to engage in silkworm raising and further increase their production, subsidies for seedlings, tractor-ploughing and production equipment were

provided by the county government. Meanwhile, the construction of farmland irrigation and water conservancy facilities was also enhanced to support cocoon production.

As a consequence of these polices, infrastructure is highly developed in Silk Hamlet. Tap water is accessible to all households and in addition to three well-functioning wells and one well-maintained reservoir, a collective irrigation system has been built and covers most arable land in the hamlet. Before they began raising silkworms, tobacco production was the main source of income for villagers in Silk Hamlet. According to villagers, so far at least, silkworm raising provides them a more reliable and steady income than tobacco production. The price of silkworm cocoons in the last five years has remained at 45 yuan per kilo. More importantly, unlike tobacco farmers, silkworm farmers are not worried about sales. In 2008, a cocoon and silk company was established in the county city to purchase and process cocoons, combined with five cocoon stations which were set up in different townships. This means that silkworm farmers are confident about the sale of their produce.

Conclusion

To achieve a context-specific analysis, in this thesis, I selected five hamlets to explore people's experiences of and responses to drought in local contexts. These five hamlets are located in the most drought-affected regions of Yunnan and share a broadly similar historical, social and economic background. However, they vary in their ethnic composition, degree of isolation, the condition of local infrastructure and specific type of economy. Walnut Hamlet and North Hamlet are ethnic minority hamlets with most residents belonging to the Yi ethnic group. Shijia, Silk Hamlet and Baijia are predominantly Han hamlets. North Hamlet and Walnut Hamlet are located in upland areas far from any local political centre or market town. Shijia, Baijia and Silk Hamlet are physically close to at least one township. Local infrastructure, in particular road and water conservancy facilities, is much more developed in Baijia, Walnut Hamlet and Silk Hamlet than in Shijia and North Hamlet. In terms of village economy, tobacco production is the most important source of livelihood in Shijia, Baijia and North Hamlet, while walnut production and silkworm cultivation are the primary sources of livelihood in Walnut Hamlet and Silk Hamlet respectively. In addition, despite the strong

agricultural focus, villagers from Baijia are also engaged in local industrial employment, and in all the studies sites, a large proportion of young adults participate in migrant work and are away from home for most of the year.

The next chapter examines how differences between the field sites hamlets with respect to geographical location, ethnicity, infrastructure and local economy have fed into community-level variations in experiences of and responses to the drought.

Chapter 3 Community-level variations in experiences of and responses to drought

Most existing literature explains community-level variations in experiences of and responses to disasters in terms of community vulnerability or resilience (Kapucu et al. 2013; Cox and Hamlen 2015). Communities are generally understood in geographic terms, with a distinction being drawn between disasters that occur in rural settlements and those that occur in urban places (Wittrock et al. 2011; Arendt and Alesch 2014). The "vulnerability" of a community is generally defined as the conditions determined by physical, societal, economic and environmental factors or processes that increase the susceptibility of the community to the impact of natural hazards (International Strategy for Disaster Reduction 2004). Multiple indices and indicators have been developed to "map vulnerability" and compare the impact of disaster events in different communities (Cutter et al. 2008; Zhou et al. 2014). In recent work, attention has also been given to the disaster "resilience" of communities, that is, their ability to prepare, mitigate and recover from a disaster (Manyena, 2006; Norris et al. 2008; Cox and Perry 2011).

Studies of both "vulnerability" and "resilience" emphasize the significance of unequal access to resources in shaping the impact of disaster on communities and in constraining communities' capacity to prevent or mitigate disaster (Prelog and Miller 2013). Commonly, in these studies, a community's lesser access to resources is attributed to the characteristics of the community itself or to the characteristics of specific members of the community. For example, geographically remote rural villages are generally viewed as more vulnerable or less resilient to the effects of disasters because they rely on only one or two sources of income, lack access to external assistance, and are home to people with personal characteristics including advanced age, lower incomes and lower levels of education, which make them more vulnerable (Wilson 2010; Prelog and Miller 2013).

I argue that this is a highly limiting approach to explaining the variation between communities. First of all, only some variations in Yunnan communities' experiences of drought can be explained in terms of the community characteristics commonly identified

in the existing literature. Secondly, and more importantly, there has not been enough focus on the social institutions and power relations, which shape community characteristics, and consequently, shape the unequal access to resources needed to face disaster. A multitude of studies have explored efforts to reduce vulnerability and build resilience at the community level, but only a few anthropological studies have pointed out that the institutional context in which disaster response, relief and recovery occurs can create a procedural vulnerability where problematic political processes and hierarchal structures that existed in pre-disaster settings are reinforced (e.g., Veland et al. 2013; Hsu et al. 2015).

In this chapter, I first briefly describe variations across communities with different physical, economic and social characteristics with respect to experiences of and responses to drought. Following existing literature, I focus on geographic location, type of economy and ethnicity as being the key characteristics differentiating the communities. This provides the background to a more extended discussion, in the second part of the chapter, analysing and explaining the ways in which these characteristics interact with social institutions and power relations to shape communities' varying experiences.

1. The impact of drought on the field site hamlets

Among the field site hamlets, Baijia was the least affected by the drought. In fact, according to the villagers, it was the seasonal floods rather than drought that exerted most impact on their hamlet, as in the last two decades, much of the cultivated land close to the river had been periodically under water. Nevertheless, severe drought since 2009 greatly disturbed tobacco production in Baijia as in other areas of Yunnan. Insufficient irrigation water and the low quality of water caused by drought brought diseases and pest infestation to tobacco leaves, which seriously reduced production output and eroded villagers' farm incomes. Data from my household survey indicated that between 2010 and 2014, farm households in Baijia experienced an average 40 percent decline in yields. However, rather than abandoning their tobacco fields, local residents rented land from their neighbours and relatives to expand their production in response to falling farm

income.[35] They cultivated multiple tobacco fields to spread risk and reduce the impact of rainfall anomalies.

According to villagers, the well-developed infrastructure within the community worked in their favour. Well-functioning water conservancy facilities, including two collective wells, a community reservoir and a piped water system, combined with convenient transport guaranteed villagers' access to water for both domestic and agricultural purposes even in the driest years.

Meanwhile, compared with other field site hamlets, villagers in Baijia were more likely to find employment in local industries, and to some extent, this compensated for their loss of income from agricultural production. The impact of drought on agricultural production increased the number of people involved in local off-farm work in Baijia. During the course of my fieldwork, 36 of the 58 households in Baijia had at least one member working in local industry; double the number before 2009.

Drought also exerted limited impact on Walnut Hamlet and Silk Hamlet. Compared with tobacco, walnuts are more adaptable to an arid climate, and, as in Baijia, when the rainfall was low, farmers in Walnut Hamlet were able to draw on their well-functioning water conservancy facilities including two collective wells and one public reservoir. Nevertheless, villagers in Walnut Hamlet still reported a 20–30 percent decrease in production yields during the period of drought.

Although there were no surface water resources within Walnut Hamlet, the nearest river was less than 3 km from the hamlet, as the crow flies. However, villagers had to go a long way around to get access to the river water due to the topography. In a normal year, rather than travelling long distances to fetch water from the river, residents in Walnut Hamlet relied heavily on groundwater and rain water. The consecutive years of drought made rain water storage impossible and greatly threatened the groundwater supply. As a result, river water became an important supplementary water source. To facilitate villagers' access to water from the river, the hamlet head designed a water diversion system, composed of a powerful pump, and pipes. He then successfully obtained funding from the county government to build the facilities. In early 2013, a pumping station was set up by the river, and pipes linking the river to the existing hamlet collective reservoir

[35] See further discussion in Chapter 4.

were put in. However, due to the difference in elevation between the river and the hamlet, the pump was not powerful enough to draw river water to the hamlet. In late 2013, additional funds were allocated to Walnut Hamlet for another pump to fix the problem. The entire project was finally completed in early 2014. Supported by the new system, the reported household annual income from walnuts in the hamlet rebounded from less than 10,000 yuan in 2012 to 30,000 yuan in 2014.

In Silk Hamlet, the relatively short growth cycle of mulberry trees and silkworms means that farmers are able to achieve multiple rounds of production in a year, from spring to late autumn. Usually, drought had the greatest impact on agriculture in spring. Silkworm farmers generally suffered considerable reduction in production during this season. However, they could make up for such losses in summer and autumn. In addition, to facilitate cocoon production, the county government funded the construction and maintenance of an irrigation system in Silk Hamlet, which further decreased the impact of drought on the hamlet. Consequently, silkworm production was regarded as a drought resisting industry by the county government.

In the meantime, responding positively to the ongoing "East-to-West Silk Industrial Restructuring Project," lowlands villages in the county have been further required to expand their production. Village governments within the county were required to sign forms specifying the numbers of households and acreage involved in silkworm raising and mulberry planting. Combining individual plots into large tracts of land for mulberry tree growing was one of the key criteria for performance evaluation, while the failure to fulfil the quotas led to circulation of a notice of criticism and withdrawal of village committees' subsidies by the township government. The village leaders complained that the township government continued pushing them to further expand production even though all the flat land in the village had been planted with mulberry trees during the past five years. To fulfil the new quota, they had to persuade villagers to grow mulberries on mountain land.

According to villagers, this brought little payoff but increased their workloads. Informants said most of their mountainous plots were far from irrigation channels and difficult to access. To make effective use of these plots, they grew vegetables such as radishes and corn to feed their livestock. These vegetables were drought-resistant and

could be irrigated by rain water collected in small water cisterns near the plots. However, growing mulberry trees required much more water than growing vegetables. Rain water from the small cisterns were rarely enough to irrigate them, which meant villagers had to carry water from long distances. It became even more difficult to ensure enough water to irrigate mulberry trees during the drought. The result was that most of their mulberry trees were poorly grown, and could not be used to feed the silkworms.

The most drought-affected hamlets were Shijia and North Hamlet. Informants in these two hamlets reported that their households' tobacco production declined by 50 to 70 percent over five years, due to drought. In 2014, none of the households earned more than 10,000 yuan from growing tobacco, whereas in 2008, 70 percent of households earned over 30,000 yuan. Nearly 60 percent of tobacco fields in these two hamlets were abandoned between 2010 and 2014, due to a lack of irrigation water. The result was that half of the land in these hamlets, particularly land that is difficult to access and far from water sources, was not planted with tobacco. Instead, villagers grew corn, radishes and pumpkins to feed their livestock. In Shijia, there were increases in the number of goats raised, and also increases in income from goat raising. This partly compensated for loss of income from tobacco.

Aside from the considerable reduction in tobacco production, farmers in both Shijia and North Hamlet were also worried about the survival of their walnut forests. Walnut and pepper growing became extremely difficult during the drought. With limited water, villagers were not able to water and fertilize their trees on a regular basis. From 2011 to 2014, over half of the walnut and pepper forests in Shijia and North Hamlet died. According to villagers, they did not suffer great loss of income from walnut and pepper, because their walnut and pepper trees were not mature enough to bear fruit, and seedlings were offered free by the county government. However, they bore the cost of grafting, pesticide and fertilizer by themselves. More importantly, they devoted their time and energy to cultivate them. As one villager commented "Although we were pushed by the village committee to grow walnut and pepper, as a farmer, once you have sown, you work hard and expect a good harvest. Therefore, I was so frustrated by this fruitless attempt."[36]

[36] Interview with male villagers, December 2014.

To make matters worse, the two hamlets suffered a shortage of drinking water. As a consequence of using excessive groundwater for both domestic and agricultural purposes, groundwater storage was severely depleted during the driest years. In 2010, the only collective well, which was also the only local drinking water supply in Shijia, dried up for nearly six months; some villagers said they had never experienced this before. The crisis was temporarily alleviated through the delivery of drinking water by the county government. Between 2010 and 2012, drinking water was delivered to Shijia by the local police, every two or three months. However, water provided by the government was not enough for daily household use. Most of the time, villagers had to buy water from the township. The difficult condition was finally relieved in 2012, when the villagers were funded by the government to build and renovate collective water conservancy facilities.[37]

The only collective well in North Hamlet also dried up between 2010 and 2012, and inhabitants in the hamlet suffered even more than villagers in Shijia. During the drought, there was no provision of funding for the construction of water facilities in this hamlet. Although the county government assigned local police to deliver drinking water and water storage equipment, such as tanks, to affected populations in this region, poor transport conditions hampered North Hamlet villagers' access to these supplies. Most of the time, they struggled to find new water sources by themselves. For nearly four years, they travelled long distances to fetch water from a river at the foot of the mountains. Some prosperous villagers tried to dig deeper wells, but the water quality remained a concern. Villagers claimed that they knew very little about the groundwater in the region, and they were not able to test the quality of the water by themselves.

Below is a summary of the characteristics of the field site hamlets and the impact of drought on these hamlets.

Table 3.1 Summary of hamlet characteristics and

[37] See further discussions in later sections.

the impact of drought[38]

County	**Lotus**				**Bronze**
Hamlet	**Shijia**	**Walnut Hamlet**	**North Hamlet**	**Silk Hamlet**	**Baijia**
Ethnicity[39]	Han	Yi	Yi	Han	Han
Hamlet type	Mountainous	Mountainous	Mountainous	Semi-mountainous	Mountainous
Distance from nearest surface water sources (river, lake, large reservoir) (km)	10	3	4	6	0
Distance from nearest township(s) (km)	9	14.5	23	5	6 and 8
Accessibility	2 km un-paved road to the location of the village committee, 7 km concrete motor road to the township	Concrete motor road to the township	5 km unpaved road (inaccessible to cars) to the location of the village committee, 18 km unpaved motor road to the township	Concrete motor road to the township	Concrete motor road to the township

[38] Figures in this table were provided by village committees.
[39] This means more than 90 percent of residents in the hamlet belong to this ethnicity.

County	**Lotus**				**Bronze**
Hamlet	**Shijia**	**Walnut Hamlet**	**North Hamlet**	**Silk Hamlet**	**Baijia**
Annual precipitation (mm) [40]	800	820	750	810	991.5
Water sources	Groundwater	Groundwater	Groundwater	Large reservoir and groundwater	River and groundwater
Access to tapped water (% of households)	70	100	50	100	100
Irrigation (% of arable land with irrigation channels	0	0	0	80	70
Main cash income sources[41]	Tobacco, goats, migrant work	Walnuts, migrant work	Tobacco, migrant work	Silkworms, migrant work	Tobacco, local off-farm work, migrant work
Ave. annual disposable income (yuan) per capita[42]	6,451	8,303	6,175	8,113	9,788

[40] All the field site hamlets belong to the semi humid (annual rainfall between 400mm to 800mm) or humid regions (annual rainfall over 800mm). See Li et al. 2016.

[41] In all the field site hamlets, most villagers in their late teens and 20s leave home and engage in migrant waged work in the cities. Therefore, migrant waged work is not a very useful aspect for comparative studies in terms of type of economy in the field site hamlets. Meanwhile, migration earnings may contribute a proportion of household income, but during my field study, over 80 percent of informants in the hamlets insisted that their households maintain a farming-oriented economy.

[42] These figures were provided by village committees for the hamlets, 2014. The figures incorporate migrant earnings. It is difficult to separate earnings from migration work from agricultural income or determine how migrant earnings are distributed between household members in the city and those in the countryside. Despite this, the income figures provide a useful basis for comparing the economic standing of the villages. Rural per capita income in Yunnan in 2014 was 7456.1 yuan (NBS 2016b).

County	**Lotus**				**Bronze**
Hamlet	**Shijia**	**Walnut Hamlet**	**North Hamlet**	**Silk Hamlet**	**Baijia**
Major stress during drought, as perceived by villagers	Drinking water shortage, impact on crops and livestock raising	Impact on crops	Drinking water shortage, impact on crops	Impact on crops	Impact on crops
External aid (material and financial support)	Drinking water delivery, water conservancy facilities construction	water conservancy facilities construction			

2. Community-level factors shaping the experiences of drought

In this section, I examine how community-level factors shape villagers' experiences of and responses to drought. I examine communities' geographic location, type of economy, ethnicity, village infrastructure and access to external aids. Rather than attribute drought vulnerabilities to these characteristics of the communities, I put particular emphasis on how certain social institutions and power relations have shaped these community characteristics, thereby indirectly also shaping experiences of and responses to drought.

2.1 Village location and ethnicity

It is widely recognized that geographical factors such as the topographic features, spatial distribution of surface water sources, soil type and land cover of a place exert significant impact on the patterns of rainfall, rate of infiltration, permeability and evapotranspiration, and thus, increase or decrease communities' vulnerability to natural hazards (Kapucu et al. 2013; Wan et al. 2016). As illustrated in Table 2.1, based on local topographic features, all field site hamlets in the present study are characterized by local governments as mountainous or semi-mountainous hamlets. Comprising steep and sometimes unstable slopes, mountainous regions are commonly viewed as place suffering disproportionately high water stress, resulting from drought, floods, erosion, and landslides (Su et al. 2012; Xu and Daniel 2012). In addition to this, mountainous regions are usually characterized as being remote and isolated places (e.g., He 2010; Xiang 2011), where the population may be required to wait days before outside assistance and additional resources arrive (Prelog and Miller 2013). However, this study finds that on its own, a community's geographic location exerts a limited impact on people's experiences of a drought. Villages located in mountainous regions do not necessarily experience more suffering during the drought, nor do all mountainous villages experience drought in the same way.

It is true that drought had a relatively small impact on people's daily life in relatively lowland hamlets such as Silk Hamlet, and due to proximity to a river, Baijia was the least affected of all the field site hamlets. However, upland hamlets with a similar distance to surface water sources, such as Walnut Hamlet and North Hamlet, experienced great variations during the drought. The case of Walnut Hamlet also illustrates that mountainous communities far away from a local political centre or market town were not necessarily more affected by drought. In contrast, drought had a great impact on some communities close to a township. Apart from Shijia, during the course of my fieldwork, I found that in both Chuxiong and Qujing, many villages and hamlets located in flat regions and close to townships experienced a severe water shortage during the drought.

Ethnic minorities in China are often portrayed as disproportionately affected by disaster events as a result of living in poor and remote mountainous regions with unstable and fragile environments including poor soil quality, widespread erosion and ongoing lack of water (e.g., Plummer and Taylor 2004; Tian 2012). However, comparison

between the field site hamlets in this study demonstrates that belonging to an ethnic minority does not in itself correlate with more suffering during the drought.[43] It is true that over 90 percent of inhabitants in North Hamlet, one of the most affected hamlets, belong to the Yi ethnic group. However, Yi residents from Walnut Hamlet were obviously less affected, whereas drought exerted a great impact on Shijia, where all the residents are Han.

In fact, in some cases, ethnic minority communities may be less affected by natural hazards than their Han counterparts, because they received special consideration from external aid agency. The relative poverty of ethnic minorities in China and their perceived role in environmental protection have resulted in a large number of NGO-led projects intentionally selecting sites inhabited by ethnic minorities (Plummer and Taylor 2004, 71). Ethnic minorities may also receive priority consideration in government policy. For example, after the 2008 Wenchuan earthquake, safeguarding and preserving the Qiang tangible and intangible cultural heritage were prioritized in the state's reconstruction plan from the very beginning. Massive funds were allocated to the Qiang ethnic regions to boost economic and cultural recovery (Tang 2010; Zhang 2012; Le Mentec and Zhang 2017).[44] During the period of drought, the Military Command of Yunnan required its local units, in particular, those stationed in areas where ethnic minority populations are concentrated, to establish contact with affected minority-ethnic villages and assume responsibility for providing drought relief services such as the delivery of relief supplies of water and the maintenance of water facilities in those villages. Over 10,000 soldiers and militiamen were involved in this mitigation activity (Yunnan Yearbook for Disaster Reduction Editorial Committee 2012, 89).

2.2 Village economy

The relationship between the nature of the local economy and people's experiences of drought is more complicated. Except for tobacco production, which is a state monopoly

[43] In this research, I only compared two ethnic groups, the Han and the Yi. Researchers collecting comparative data in different areas and between different ethnic groups may come to a different conclusion.

[44] Some of the post-disaster programs failed to bring about sustainable development to the areas and ignored the initial goal of cultural recovery, as they were insensitive to the trauma of affected populations and the sociohistorical context (see Mentec and Zhang 2017).

industry, state control over village economies declined greatly following decollectivization and other economic reforms in the early 1980s. However, the reforms did not entirely free the rural population from local government intervention. Being assigned the task of fostering local economic development, local governments at all levels have campaigned for the introduction of cash crops as the primary means of generating local revenue and raising farmers' incomes over the past three decades. In all my field site hamlets, tobacco, walnuts, and silkworms were not chosen by villagers themselves, but were "introduced" by the government to become the main income source for farming households.

Governments and corporations organize rural households into coordinated processes of production and, control these processes through village cadres. By law,[45] villages are self-governed, and village cadres are not considered state officials. Nevertheless, they are accountable to and evaluated by upper-level authorities (O'Brien and Li 1999; Edin 2003; Kung et al. 2009). It is common for township governments to specify responsibilities, usually relating to the achievement of particular national, provincial or county policy or developmental goals for village cadres to fulfill and to link performance evaluation and bonuses to the fulfillment of these responsibilities. Apart from receiving regular salaries or stipends from the township government,[46] in the field site villages, cadres get an annual bonus from the township government, linked to an evaluation of their performance. Moreover, the administrative expenses of the village committee such as telephone charges and office supplies are also provided by the township government. Village cadres from the field sites said the township government would cancel these bonuses and subsidies if they failed to complete the tasks assigned by the higher-ups. Sometimes, the township government even circulated a notice of criticism to punish them for failing to do their duty.[47]

Consequently, as mentioned in Chapter 2, cadres in all the field site hamlets were pushed very hard by higher-level governments to meet quotas for agricultural production and improved villager income. They claimed that addressing demands from higher-level authorities is their most important task. In general, cadres cannot force villagers to grow

[45] The Organic Law of Village committee.
[46] In the villages under study, the heads of the village committee and the village Party secretaries are paid a regular salary. In addition, all the hamlet heads receive a small stipend from township governments.
[47] The township government is subject to the same pressure from upper-level governments, and they too are held accountable to and evaluated by upper-level authorities.

crops. Instead, they tried to mobilise villagers to achieve the quotas by taking the lead and acting as role models. In addition, since villagers often came to village cadres seeking help, such as in providing written certificates or financial assistance and mediating disputes, cadres were able to manipulate relations with villagers and exert pressure on villagers to engage in cash crop production. Furthermore, villagers also wanted to increase their income. The introduction of cash crops was often accompanied by preferential policies including subsidies, infrastructure construction and guaranteed sales, which encouraged them to get involved in production.

All this constrained villagers' ability to make a living outside the existing economic framework, that was, outside of the strong focus on one or two cash crops. Consequently, despite suffering from a decline in production during the drought, the farming orientation of the villagers did not change, and cash crop production remained the largest source of income in all the hamlets.

Within this overall picture, large disparities existed between hamlets concentrating on different types of cash crop production.

Since more water is required for tobacco production, in general, tobacco farmers experienced the greatest decline in production during the drought compared with farmers engaged in walnut growing and silkworm raising. However, the decrease in tobacco production and consequent erosion of households' income was embedded in a larger economic context. Recent economic transformations have brought about significant disparities between villages in Chuxiong and Qujing, especially with respect to the growth of local industry. Compared with other field site villagers in Chuxiong, residents in Baijia enjoyed better access to local off-farm job opportunities, and to some extent this replaced their lost income due to cash crop failures.

2.3 Village infrastructure

The most obvious cause of the disparity between affected and less affected hamlets was the existing quality and extensiveness of village infrastructure, in particular water conservancy facilities and roads. Hamlets with well-maintained water facilities and roads, regardless of whether or not they were located in a remote mountainous area or belonged

to an ethnic minority, and regardless of the type of cash crop production they engaged in, were able to protect their inhabitants from water shortages and hence, maintained a relatively normal life during the period of drought. In contrast, residents of hamlets without access to developed water and transport infrastructure not only suffered great financial loss, but were confronted with severe water shortages, and suffered disruption to their daily life.

As mentioned in the Introduction, differences in existing infrastructure among the field site hamlets are closely related to the decentralization of the provision of local public goods in rural China. In all the field site hamlets, community water facilities such as wells, ponds, and small reservoirs were initially built between the 1950s and 1960s by rural residents providing corvee labour to the commune. The abolition of the commune system and tightened fiscal regulation since the mid-1990s have undermined local government's ability and incentives to intervene in village affairs. Consequently, villages have to rely more on themselves to come up with ways to at least partially fund local public goods. However, unlike villages in more developed regions of China, all the field site villages in the present study lack their own revenue streams to fund infrastructural construction and have had to rely on project grants from upper-level government. Although the central government has developed a series of policies to strengthen intergovernmental fiscal transfer to support public goods provision, according to county and township cadres in the field sites, there remains a huge financing gap. Therefore, villages have had to compete with each other for the limited funds.

In all the field sites, village cadres repeatedly applied for funds earmarked for special initiatives from upper-level governments to support the construction of concrete roads linking them to the outside and to build and maintain water conservancy facilities. According to them, success in this endeavor largely depended on personal connections between village communities and governments. Villages and hamlets with connections to decision makers in higher levels of government had an important advantage in obtaining funding for public goods.

2.4 Aid: external provision of drought relief

Apart from the quality of existing infrastructure, access to external aid was a further factor shaping villagers' experiences of and responses to drought. Faced with a critical shortage of drinking water, villagers in both Shijia and North Hamlet voiced great demand for assistance from external agencies. The difficulties in Shijia were finally relieved through a government drought relief program. However, with limited access to external help, villagers in North Hamlet had to rely on themselves to get through the toughest period.

In China, as elsewhere in the world, the provision of disaster relief is viewed as a government responsibility. A hierarchical administrative system from the national to the local level has been established for the purpose of disaster mitigation. Currently, the country's highest institution for drought relief is the State Flood Control and Drought Relief Headquarters (SFDH), which was initially established and known as the Central Flood Control Headquarters in 1950, then reorganized as the SFDH in 1971. It has been chaired by a Vice Premier of the State Council since its founding. Consisting of related agencies such as water resource departments and armed forces, the SFDH functions as a coordinating body under the State Council to lead and organize flood and drought mitigation in China. At lower levels, Flood Control and Drought Relief Headquarters (FDH) are set up at and above the county level to integrate and coordinate local forces in providing drought relief. Meanwhile, drought relief regulations are issued at national, provincial and prefecture levels to guide procedures for the provision of relief.

Government agencies played a significant role in drought mitigation in Yunnan. According to the Flood Control and Drought Relief Headquarters Office of Yunnan Province (FDHOY), between 2010 and 2014, 172 million yuan was allocated for drought relief activities and over 4 million people participated in government-led drought mitigation work. Specific drought mitigation measures adopted by the government included providing early warning and prevention information, carrying out artificial precipitation, investing in water conservancy facilities, sending armed forces to deliver drinking water and water storage equipment to severely affected populations and providing water transport subsidies to rural households (FDHOY 2014). These measures

temporarily relieved the shortage of drinking water for 3 million people and 1.5 million livestock and provided irrigation water for over 8 million mu of land (Ibid.).

In the field site hamlets, government-initiated drought relief provision took two forms. The first was to provide early warning and prevention information to villagers. This kind of drought relief was widely accessed by inhabitants in affected regions, including all the field site villages. During the course of my fieldwork, all the informants who owned a mobile phone reported that they had received text messages sent by local governments to inform them of the possible duration of low precipitation. Meanwhile, village cadres said that following instructions from the county water conservancy bureau, they held household head meetings and used village broadcasting to remind villagers to store water and adjust cropping patterns in a timely manner. However, villagers in the field sites reported that most information about drought prevention and mitigation from the government was merely common sense for every rural household.

They were more appreciative of the second form of help, that was, material and financial support. Informants from Shijia said that water delivered by local police provided temporary relief from the crisis of drinking water shortage. According to villagers in Walnut Hamlet, through receiving drought relief funds from the county government, they successfully built a water diversion system, which not only helped them rapidly recover from the economic loss caused by the drought, but also guaranteed them protection against drought in the future.

According to village cadres, there were two ways of accessing material and financial aid from the government. One was applying for drought relief funds, as Walnut Hamlet did. Another was to be selected as a site for poverty alleviation projects, as providing timely assistance to villages hit hard by drought was a priority for the poverty-alleviation program. However, not all drought-affected communities were eligible for poverty alleviation projects. In general, only villages and hamlets in nationally designated poor counties (*pinkun xian* 贫困县) could be selected as project sites.

In China, according to the Outline of Poverty Alleviation and Development in Rural Areas (2011–2020) (CCP Central Committee and The State Council 2011), the responsibility for poverty alleviation lies with the provinces. To enlarge resources for this purpose, the provincial governments are encouraged to mobilize their individual

government bureaus as well as public institutions, such as public universities and hospitals and state-owned enterprises within their jurisdiction to juggle their budgets and eke out enough funding for development projects in needy localities *(shengji jiguan shiyedanwei dingdian guagou fupin* 省级机关事业单位定点挂钩扶贫). All the projects should take counties as their basic units, and each provincial government bureau, enterprise and public institution is responsible for looking after several counties. Currently, the state has defined 529 counties in the central and western regions as key counties for national poverty-alleviation and development work; 73 of the 529 designated "poor counties" are in Yunnan, making it the province with the highest number of poor counties (The State Council Leading Group Office of Poverty Alleviation and Development 2012).

Within poor counties, particular administrative villages, and within them, households, are targeted for poverty alleviation projects. The responsibility for village selection lies with the government departments of the key counties, in particular, with the County Poverty Alleviation Office. This is because they are thought to have better information than higher-level governments about the needs of villagers, and are thus more likely to provide appropriate help to needy localities. During the drought, the official criteria for identifying villages for poverty alleviation included the number of penurious households (*pinkun hu* 贫困户), farmers' average income levels, basic production and living conditions, with appropriate consideration given to the influence of drought (Lotus County Poverty Alleviation Office 2014).

Despite decision makers attempt to ensure fairness in the distribution process, in most cases, benefits have not extended to the neediest locations. Again, villages and hamlets with connections to government were more likely to be provided with drought relief funds or to be selected as poverty-alleviation project sites, and thus, to be provided with technical, physical and financial relief.

2.5 *Guanxi*: the connections between local communities and external relief agencies

These connections between local communities and external agencies have been discussed in disaster literature in terms of social capital. In these studies, social capital is generally defined as the norms and networks that enable people to mobilize resources in response to disasters (LaLone 2012; Bhandari 2014; Bankoff 2015; Loebach and Stewart 2015). Most existing literature further distinguishes social capital into three types, namely "bonding," "bridging," and "linking" and examines how each type of social capital functions in coping with the stress of disasters. In general, "bonding" social capital refers to relationships amongst members of a network who are similar in socio-economic status (Putnam 1995). "Bridging" social capital is the relationship amongst people who are distinctly dissimilar in terms of age, socio-economic status, race/ethnicity and education (Szreter and Woolcock 2004). The relations between local communities and external agencies such as government department and expert groups are generally classified as "linking" social capital, that is, the relationships which people build with institutions and individuals who have relative power over them (Grootaert 2001; Szreter and Woolcock 2004).

Some scholars emphasize that the presence of linking social capital "allows for the potential of agenda setting at the local level to be more easily communicated and accepted by higher political officials, which potentially allows for local community initiatives to receive broader influential support (Rivera and Nickels 2014, 186)." However, most existing literature only focuses on the initiation and consequences of specific disaster relief projects (e.g., Rivera and Nickels 2014; Aldrich and Meyer 2015; Loebach and Stewart 2015). In these studies, linking social capital tends to be viewed merely as cooperative relations between local communities and external agencies. There is a neglect of how such relations are established and reproduced through the implementation of relief projects. This often leads to a failure in explaining communities' variations in terms of access to external drought relief aid.

In the context of rural China, the role of linking social capital in disaster mitigation can be understood through the concept of "*guanxi* (关系)," which literally means "relations" or "relationship." As commonly used in Chinese societies, it refers more

narrowly to "particularistic ties" (Jacobs 1979, 1980), which people can rely on to achieve goals. These ties are based on both ascribed traits and on achieved characteristics (Gold, Guthrie, and Wank 2002, 6).

Guanxi is often based on kinship. The story of Baijia provides an example. This hamlet has the most developed infrastructure of all the field sites, with both a motor vehicle road and an irrigation system having been built as early as the 1990s. At that time, the head of the township, Bai Rong, was from Baijia. His family was very powerful in the region, with several members working in township and county-level governments. *Guanxi* with these officials allowed this township leader to obtain funds from the county government to support infrastructural construction in his community. Moreover, he also received subsidies from the county tobacco company to build pump stations and renovate the collective reservoir, as in the early days of the tobacco campaign, tobacco corporations provided villages with additional subsidies for local infrastructural construction if they met the criteria for large-scale planting (Dai 2013; Cheng and Ngo 2014). Even after he withdrew from the position of township head and became a businessman, he and his family's strong social connections still facilitated the funding of a concrete road construction project in Baijia.

Other typical *guanxi* ties are between people who went to school together or who formerly served in the same military units. For example, in Walnut Hamlet, the military experience of the hamlet head extended his connections with powerful people outside the community, and thus, helped his community more effectively respond to the drought. According to this hamlet head, a close friend from his army days became the deputy head of the county. This connection allowed him to successfully obtain funds for infrastructure construction. In 2008, the hamlet was equipped with advanced water conservancy facilities and a concrete road linking to the town centre. During the drought, with the help of his friend, he successfully applied for drought relief funds from the county government.

The case of Walnut Hamlet also demonstrates that access to infrastructural development and to external assistance is not a privilege of the majority Han ethnic group. There is no evidence indicating that ethnic minority identity is automatically correlated with weak ties to the government (e.g., Pizzi 2015). In contrast, like the head of Walnut

Hamlet, ethnic minority cadres are as capable as their Han counterparts of establishing connections with powerful people outside their hamlets and villages as well as manipulating these connections to benefit their communities. In fact, ethnicity can itself be the basis for a type of "particularistic tie" based on ascribed traits. In Yunnan, it is a very common practice that higher-level cadres provide favourable treatment to lower-level cadres or communities belonging to the same ethnic minorities.

It is important to point out that ties and relationships, such as kinship, friendship, co-workers and classmates cannot be reduced to *guanxi* but serve as base for *guanxi* practice. Some of the above-mentioned relations are understood as being less instrumental and ethically purer than *guanxi*, which functions for instrumental purposes, and also, possess emotional and affective components (Yang 1994, 110).

More importantly, *guanxi* is more than simply an issue of ties and relationships (Gold, Guthrie and Wank 2002, 5). Some scholars point out that *guanxi* resembles Pierre Bourdieu's understanding of social capital (Ibid., 7), that is, "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (1986, 248–249). However, some important aspects of *guanxi* set it apart from a generalized notion of social capital (Yan 1996a; Gold, Guthrie and Wank 2002). The most distinctive aspect of *guanxi* is that it is based on mutual interest and benefit. The notion of reciprocal obligation and indebtedness is central to the *guanxi* system in China (Yang 1994, 6; Gold, Guthrie and Wank 2002, 7).

In the field site villages, mutual benefit and reciprocal obligation took the form of funding for drought relief or poverty alleviation for the hamlet and a good reputation for its head, in return for the fulfilment of projects and performance targets for government officials.

The case of Walnut Hamlet provides a clear example. During my fieldwork, the hamlet head told me that before applying for funding for the water diversion program, his friend, the deputy head of the county, first introduced him to officials from the county Water Resources Department for advice. As Walnut Hamlet is a small hamlet with only 25 households (all belonging to one small group), the officials suggested that the hamlet head work with neighbouring small groups or hamlets to extend the coverage of his water

diversion program, so that the county government would be more likely to fund it. He took this advice, and worked with a neighbouring small group (also a hamlet) with a similar small population. The two hamlet heads then made a joint application. The county government expressed great interest in the program and planned to make these two hamlets experiment sites of drought mitigation. If the system works well in these hamlets, the government will further introduce it to other drought-affected localities with similar physical conditions.

In China, local governments are expected to be innovative, creating successful "models" and "experiments" that can be replicated elsewhere (e.g., Heilmann 2008). Moreover, evaluation reinforces the pressure of local governments to produce such experiments, as it indicates the ability of a locality and its leadership (Heberer and Trappel 2013, 1061). In rural China, cadres' performance evaluation mainly takes three forms: policy program evaluation *(mubiao kaohe* 目标考核*)*, evaluation of leading cadres *(kaoping* 考评) and "one item veto rule*" (yipiao foujue* 一票否决) (Ibid., 1052–1053). In general, models and experiments are evaluated by the annual program evaluation, and then creation of successful models influences the standing of local leadership and their evaluation scores. Consequently, on the one hand, funding the water diversion project in Walnut Hamlet provided drought relief to the local community. On the other hand, it helped the local government to achieve a good outcome in evaluation.

According to the hamlet head, the entire project was initially budgeted at 80,000 yuan. However, funding from the county government was only able to cover about 50 percent of the total expense, which meant each household from the two hamlets was expected to contribute about 1200 yuan to the project. Most residents in the neighbouring hamlet felt the price was too high for them to accept, and finally withdrew from the project. Meanwhile, after several rounds of household-head meetings, villagers in Walnut Hamlet finally agreed to get the project done, but the planned water diversion system needed to be simplified to reduce investment costs. As mentioned in the previous section, at first, the system did not function well due to the power supply problems, but as more funds were allocated to the project, it was completed on time and worked well.

At the time I visited the hamlet, the hamlet head was applying for more funds from the county government for another pump to solve the problem of power supply. He was

very confident about the outcome of the funding application. When I asked him why, he said, "First of all, the deputy head is my old friend, he is very keen to help. More importantly, all the officials, including himself, from the county departments concerned with drought reduction are enthusiastic about the project. That is because the success of this project can be portrayed as a remarkable achievement of their drought reduction work. As a result, they are willing to allocate more money to ensure it runs well."[48]

These reciprocal relations between community and external agencies during the drought can also be illustrated with the case of Shijia. As mentioned before, aside from directly applying for drought relief funds from the government, another common way of accessing material and financial aid from the government was to be selected as a site for poverty alleviation projects. Among all the field site hamlets, Shijia was selected by a government department at provincial level to initiate such a project. According to one of the project managers, Shijia was selected because "it is a severely affected hamlet in a nationally designated poor county."[49] Shijia suffered severe water shortage during the drought, especially when both the collective well and reservoir dried up. However, in the administrative village where Shijia is located, there are 7 hamlets and 21 small groups. All suffered water shortage during the drought due to weak infrastructure. Shijia was definitely not the most affected by drought and nor was it the poorest hamlet within the administrative village. Both villagers and village cadres claimed that among the seven natural villages, Shijia ranks in the middle in terms of villagers' incomes. When I asked project officials and village cadres to explain why Shijia was selected rather than the more affected hamlets, they said that with limited funding, the project was unable to provide water conservancy facilities to all these scattered natural villages. Therefore, the provincial department asked its local agency, the county government and the county-level department to select an appropriate natural village or several small groups to launch the program. "The higher-ups required us to select a place where the program could succeed. This is very important for them because the project will be evaluated by the provincial government."[50]

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[48] Interview with head of Walnut Hamlet, December 2014. All interviews for this thesis were conducted in confidentiality, and the names of the interviewees are withheld by mutual agreement.

[49] Interview with official from a county-level government department, January 2014.

[50] Group interviews with two officials from a county-level government department, village Party secretary (also the head of the village committee), the deputy secretary, the accountant and the hamlet head of Shijia, January 2015.

In Yunnan, poverty-alleviation programs supported by provincial bureaus, state enterprises and public institutions have been launched since 2003. In the early years, since funding agencies were not accountable to other authorities, it was very common for programs to be discontinued and many were never completed. In addition, allocated funds were often siphoned off before they reached the designated recipient, and some departments even ignored the localities to which they were assigned. To resolve these issues, in 2007, an evaluation system was established by the provincial government to monitor these programs. According to the Interim Regulations of the Evaluation of Anti-poverty Programs Led by Provincial Departments in Yunnan (Yunnan Province Poverty Alleviation Office 2007), an evaluation group led by the provincial Poverty Alleviation Office and consisting of multiple provincial departments is responsible for assessing every program. The main evaluation indicators include the implementation of related state and provincial policies, funding management, program implementation and the outcome of the program. All programs are scored, and the evaluation results are revealed to the public.

To achieve a high score in evaluation, most funding agencies at provincial level focus on program sites. As a village cadre commented, "The higher-ups always look for 'capable' villages to support the programs (*fude qilai* 扶得起来). They believe that if the village is good, programs will go well; if the village is weak, the impact of the program will be weak, and a good village is associated with a very able leader or a small group of capable villagers who have *guanxi* with the government."[51]

The selection of Shijia provides an example. The hamlet head of Shijia, Zhao Wu, was a friend of a county-level official, who was also one of the decision makers on program site selection for this government bureau. "He knew me for years and believed I had the ability to get the program done in my hamlet. Therefore, he persuaded his colleagues to select my hamlet. If the program succeeded, he would also be rewarded for this good work by the upper-level cadres."[52]

These mutually beneficial ties and forms of trust between local communities and government departments can be accumulated over time, thus repeatedly contributing to communities' advantages in access to government-initiated projects. As noted by a

[51] Interview with male village cadre, January 2015.
[52] Interview with hamlet head of Shijia, January 2015.

village cadre "Once you successfully complete a government project, the *guanxi* between your village and the government will be strengthened, and your village will more likely be selected for another project."[53] For example, the head of Walnut Hamlet emphasized that his community was able to receive funds from the county government because "This is not the first time I have led a public project in my hamlet. About four or five years ago, I applied for an anti-poverty program and got the hamlet road paved. Both the village committee and the upper-level cadres know that I am capable enough to make the current project work well." [54]

In the case of Silk Hamlet, the hamlet head, who is also the Party secretary and the head of the village committee, has served in the village committee for over ten years. Through completing different projects from upper-level authorities, in particular, a project introducing and promoting cash crops, he established close, mutually trusting relations with both upper-level officials and tobacco company staff. "Our village committee was honoured in 2001 and 2008 by the county and township governments for introducing and promoting chestnut and silkworm raising respectively. As a reward, the county government and the silk company funded local infrastructure to support production in the community. This is the reason why our community has a well-paved road and a good irrigation system.[55]

In contrast, informants in North Hamlet complained that despite being in great need, they were not able to count on assistance from external agencies to deal with the drought, because both their hamlet head and village leader lacked *guanxi* with powerful people outside the village, and also lacked the ability to talk with and persuade powerful people to bring benefit to their community. Consequently, they had to rely on themselves to get through the toughest period.

[53] Interview with male village cadre, December 2015.
[54] Interview with head of Walnut Hamlet, December 2014.
[55] Interview with head of Silkworm Hamlet, December 2014.

2.6 The relations between village infrastructure and access to external aid

I have explained above that the existence of collective infrastructure and the help of external agencies were the two key factors shaping hamlets' experiences of and responses to drought. Importantly, these two key factors were connected. First of all, hamlets whose leaders had *guanxi* with powerful figures outside the community were more likely to get access to both infrastructure and external drought relief aid. Secondly, there was a correlation between access to advanced infrastructure, in particular roads, and external help.

For example, aside from the practice of *guanxi*, another factor enabling Shijia to benefit from external help was the accessibility of the hamlet. To make sure that allocated funds are used for the designated purpose, officials from government bureaus, state-owned enterprises and public institutions are required to visit poverty alleviation program sites and monitor the implementation of the programs on a regular basis. This has become even more important since 2011, when the provincial government launched a campaign known as the Four Masses Education (*siqun jiaoyu* 四群教育) to reinforce and further develop the relationship between cadres and ordinary people.[56] All government bureaus above the county level are required to work with the masses, especially rural residents, directly, and every year, cadres at all levels are required to "come down and practice in a village"
(*zhucun shijian* 驻村实践) for a given period of time.[57] Getting involved in anti-poverty or drought relief programs provides cadres with a good opportunity to fulfil their grassroots service requirements. Consequently, these external funding agencies intentionally avoid selecting villages that are difficult to access to launch a project, as convenient transport facilitates officials from the funding agencies to visit the program site regularly. This was one reason for the selection of Shijia. According to the village Party secretary, there were at least two hamlets more affected by the drought than Shijia.

[56] The CCP Central Committee urges its members to adopt the "mass line" (doing everything for the masses, relying on them in every task, carrying out the principle of "from the masses, to the masses") as they did during the revolutionary times, in a move to improve ties with the public. *Siqun jiaoyu* is a local response to the call of the Central Committee.

[57] This is determined by cadres' position in the government hierarchy. Provincial-level cadres are required to visit a village for three to 7 days per year. For county (district) level cadres the figure is 10 days, and for township level cadres 30 days.

"But because there are no motor vehicle roads to these localities, officials from upper levels of government are not able to come down to inspect the program. As a result, we cannot select them as program sites, despite their greater needs."[58]

Although the road linking Shijia to the location of village committee is poorly paved, it is accessible by motor vehicle. Actually, before the construction of this road, residents of Shijia had difficulty travelling to nearby commercial centres. Before 2008, the nearest highway where villagers could get a lift to the county market was located on the other side of the mountain. Loaded with heavy produce, villagers spent hours trekking across the mountain to that main road. In 2007, the village committee was funded for a concrete road linking the village committee to the county. In order to get better access to the outside world, after the construction of that village committee-county road, residents in Shijia contributed funds to build a dirt vehicular access road to link their hamlet to the village committee. With limited funds, they had to take the shortest route. However, this route crossed several plots of arable land belonging to a neighbouring hamlet. To address this problem, the hamlet head persuaded households with arable land in Shijia to give up their land to compensate their neighbours, and then adjusted the landholdings of all households in Shijia, so that the loss of land would be spread more equitably across the hamlet. The construction of this road was also considered one of the achievements in the hamlet head's career. He was later rewarded for this good work by the township government and was recognized as a very able village cadre. This was an important point enabling him to persuade the county cadres to choose Shijia as a desirable site for a poverty alleviation project.

Aside from facilitating project management, the reduced costs of transportation due to the availability of a road also made external relief provision more likely in some places than others.

Officials from the local police station in Chuxiong and Qujing reported that between 2010 and 2012, they were required by the county government to deliver drinking water to those severely affected villages within their jurisdiction. The aim of the program was to deliver water to every household in every affected village. However, in the two field site hamlets where villagers suffered a severe drinking water shortage, only residents in Shijia

[58] Interview with male village Party secretary, January 2015.

reported that they had seen water trucks reaching their hamlet and had received water and tanks from police officers. Drought relief supplies never reached North Hamlet, the more affected location. Local police officers explained that because they used large vehicles such as fire engines and trucks, it was impossible for them to deliver water to villages and hamlets without motor vehicle roads. Where there were no such roads, they usually left water and other supplies with the village committee and let the committee distribute them. Village cadres in North Hamlet confirmed this, and said they asked villagers to use their tractors, motorcycles, or in most cases, mules to transport water to their households. Villagers in North Hamlet also confirmed that they were told by the village committee to go to the committee building to collect water delivered by the government. According to some informants, the government delivered water four or five times in the driest years, but they had never gone to the village committee to collect it. One villager explained, "The distance from my hamlet to the village committee office is similar to the distance from the hamlet to the nearest river. If I decide to go down the hill, I go to the river. The amount of water I can get from the village committee is very limited and honestly, not really much use. With the same transport expenses, I prefer to fetch more water from the river. Besides, the village cadres also encourage us to let old and disabled people, who have trouble fetching water from the river, claim the delivered water."[59]

2.7 Drought relief aid provided by other external agencies

Apart from government agencies, both international and local NGOs were widely involved in drought relief provision. Numerous national and international NGOs, including China Foundation of Poverty Alleviation, China Charity Federation, China Children and Teenagers' Fund, China Women's Development Foundation, Red Cross Society of China and Oxfam Hong Kong, launched nationwide fund-raising for drought relief and funded as well as provided numerous water conservancy facilities and supplies to help affected people access and store water (Liu 2010). In the meantime, in Yunnan, multiple local NGOs within the province and from all over the country actively arranged for clean drinking water and delivered it to thirsty villages, funding small-scale water facilities and supplying buckets and water pipes to drought-affected regions.

[59] Interview with male villager, December 2014.

Staff from the NGOs[60] I interviewed pointed out the need to work through both partnerships and direct implementation with local stakeholders. One staff member commented, "We are required to get approval from local authorities before conducting any program in a specific site, and in many cases, it is true that the areas where the organization worked represented some of the least affected in the disaster region. The county or township governments are actively involved in and exert huge influences on program site selection. In general, they rarely let us into places with poor transportation, even though they may have been more affected by drought than the selected sites. I am not indicating their irresponsibility for those villages. They have their own considerations, such as the need to follow up the program in a timely manner themselves, and to ensure the safety of our people. In a word, an easily accessible site facilitates program management and our organization also benefits, because relief projects that worked within accepted local authority structures or mapped onto local power relations enjoy a higher probability of success."[61]

Tobacco companies also provided drought relief, as did individual volunteers. Again, two key factors—the *guanxi* between the village and the external agencies and the accessibility of the village—contributed to project site selection. Between 2010 and 2013, the State Tobacco Monopoly Administration (STMA) allocated 200 million yuan for drought relief in Yunnan (Yunnan Yearbook for Disaster Reduction Editorial Committee 2014, 128). Tobacco companies from province to county level were required by the STMA to increase investment in tobacco field water conservancy facilities, provide water transport subsidies to tobacco farmers and send tobacco expert and technicians to help farmers planting tobacco under conditions of water scarcity (Ibid.). Like that provided by government departments and NGOs, the coverage of drought relief provided by tobacco companies was limited to hamlets and villages that were accessible and with which they had *guanxi*.

[60] In this research, I conducted interviews with staff from three NGOs. One is the local branch of an international NGO, which adopted provision of water and equipment as the major approach to help affected villagers. Another two are local grass-root organizations funded by international NGOs. Besides water and water delivery equipment delivery, they also funded water conservancy projects in drought-affected villages. I also interviewed several individual volunteers who funded drought reduction projects in villages in Yunnan by themselves. One-third of this group of informants were from Kunming, the capital city of Yunnan, and the rest were from other provinces or municipalities, including Henan, Sichuan and Beijing.

[61] Interview with male staff from an NGO in Kunming, March, 2015.

In comparison, individual volunteers who funded themselves to provide help to drought-affected people in rural Yunnan generally believed that their assistance was more likely to reach the places eliminated from consideration by government, NGOs or tobacco companies, due to poor transport conditions. Some informants even claimed that they chose to work independently of any organizations because they wanted to select the places most in need and thus, provide effective help. However, these informants also admitted their great dependence on local contacts, who are more familiar with the local situations than themselves. One informant said he had managed to deliver drinking water and supported rural households to build water cisterns in a remote hamlet without a motor vehicle road, because one of his local contacts is a migrant worker from that hamlet. [62]

Conclusion

Neighbouring communities subjected to the same rainfall regime may have radically different experiences of drought. The impact of rainfall is only part of the drought equation. Multiple social relations and institutions intersect and interact with each other to shape the impact of drought at community level.

In Yunnan, the three key interrelated factors shaping hamlets' experiences of and responses to drought in the period 2009–2014 were the existence of collective infrastructure, the help of external agencies and *guanxi* with external agencies. In hamlets with developed infrastructure, in particular water facilities and roads, inhabitants were protected from the worst suffering caused by drought and were able to maintain a relatively normal life. Access to emergency relief provided by external agencies, particularly the government, also exerted a huge impact on hamlets' experiences of drought. It is noteworthy that there was a positive correlation between access to roads and external help during the drought. In general, hamlets that had difficulties in obtaining developed transport infrastructure also had limited access to drought relief resources. Remote mountainous villages were not automatically deemed inaccessible and therefore eliminated from consideration for drought alleviation projects provided by external agencies. On the one hand, some mountainous villages were provided with relief projects,

[62] Interview with male volunteer from Henan Province, March, 2015.

which not only helped villagers rapidly recover from the economic loss caused by the drought, but also guaranteed them protection against drought in the future. On the other hand, low quality and poorly maintained roads meant that some lowland villages were considered inaccessible and isolated by drought relief providers, despite their physical proximity to townships and other population centres.

In general, hamlets whose leaders had *guanxi* with key figures were more likely to get access to both infrastructure and drought relief provided by external agencies. This is because rather than providing public goods or drought relief assistance to the neediest localities, external agencies especially government departments, showed more concern with producing visible success, as the work performance of cadres is measured in terms of such success. To ensure their projects succeed, external agencies rely on personal connections to select project sites and carry out the project. These connections include networks of family, friends, co-workers, and other contacts within and outside the community. Favourable treatment by external agencies is provided to communities with strong connections.

The advantages in access to infrastructure and drought relief enjoyed by hamlets with well-connected leaders tended to accumulate over time. This is because villages with previous successful experience in one project were more likely to be selected for another, as external agencies believe that projects are more effective in villages where there are pre-existing collaborative relations between the village community and themselves. Consequently, some villages received duplicate public goods and drought relief provision while others were left to cope with the crisis of water scarcity on their own.

During the recent period of drought in Yunnan, key influential figures, such as village cadres, were crucial in establishing access to infrastructure and external assistance, which ameliorated the impact of drought on village communities. At the same time, their pivotal position in mediating external resources provided these influential figures with material resources and livelihood opportunities, and further reinforced their status and power. Later chapters will explore how social and economic divisions between these more privileged and powerful villagers and others shaped variations in experiences of and responses to drought *within* communities.

Chapter 4 Household responses to drought

Within the same village community, households subjected to the same natural and climatic conditions may experience radically different, even opposite, impacts (Finan and Nelson 2001; Keshavarz et al. 2013) and respond by adjusting their behaviour in different ways. In the field site hamlets, since cash crops are the primary income generators for most households, during the drought low precipitation and the depletion of water in wells, reservoirs and other water storage facilities led to a major reduction in crop productivity, which in turn caused a decrease in household incomes in all the field site hamlets. Despite these shared conditions, households' responses to the drought varied considerably.

Previous studies tend to explain these variations in terms of differing levels of vulnerability, coping capacity and resilience among households. An examination of the livelihood strategies adopted by households in dealing with different types of crises in relation to disasters is widely used to assess vulnerability, coping capacity and resilience (Amos et al. 2015; Ingxay et al. 2015). In this approach, households' vulnerability to disasters is determined by their differential access to "livelihood capital," which enables them to renew and reorganize livelihoods in the face of disturbances caused by disasters. In general, livelihood capital is seen as comprising "human capital" (labour, skills), "social capital" (networks, membership of groups, relationships of trust, access to wider institutions), "physical capital" (transportation, shelter, water, communications), "financial capital" (savings, credit, remittances) and "natural capital" (land and water) (Rakodi 2002). The capital available to a household constitutes a stock of assets, which can be stored, accumulated, exchanged and put to work to secure income during and after a disaster (Eriksen and Silva 2009; Lin and Chang 2013; Fang et al. 2014; Wang et al. 2014). Households with less capital are defined as more vulnerable to disasters.

I argue that the scholarly contribution of studies taking this approach is limited by inadequate examination of two issues. First, they generally only describe inequalities between households with respect to access to the livelihood capital needed to cope with disaster and fail to adequately examine the social factors contributing to those

inequalities. Second, in the focus on livelihoods and access to livelihood capital authors often struggle to look beyond the economic needs and aims of household life. A number of anthropological works have explored the more complex domains of human wellbeing, affect, practice and culture in disaster contexts (e.g., Browne 2013; Marino and Lazrus 2015; Faas 2018). However, there is a tendency within livelihood vulnerability studies to downplay the importance that people attach to achieving non-economic aspects of household life, such as nurturing emotional bonds with kin both within and outside households and caring for and ensuring the health and emotional well-being of household members.

The neglect of this aspect of household life often leads to a failure in identifying and interpreting the factors contributing to households' vulnerability and the strategies they adopt to cope with disaster.

In response to these drawbacks, this chapter first describes the varied coping strategies that differently positioned households in each field site community adopted in response to the challenges they faced in meeting material, social and emotional needs as a result of the drought. It then analyses and explains the ways in which social institutions and power relations shaped these coping strategies. While households frequently function as identifiable units of production and reproduction, they are seldom independent, but linked to wider groups of kin and neighbours. In the third section of the chapter, I examine the social interactions between households and how these interactions within the community shaped individual households' experiences of and responses to drought.

1. Household variations in responding to drought

When asking villagers their perspectives on drought, the most popular responses I received during my fieldwork were "we are not as lucky as those who work for a *danwei* (work unit), because they have never had to worry about drought." The term *danwei* refers to an urban unit of employment, such as a factory, social service institution, or governmental agency (Zhang and Chai 2014, 80). Under the planned economy, *danwei* was the fundamental form of social and economic organization in

urban areas, providing a range of welfare benefits as well as stable employment (Walder 1986). Since the foundation of the PRC, there have been inequalities and stratification in material earnings, benefits, mobility opportunities, authority and accessibility of resources among different *danwei*, and these widened after the 1980s, as a result of market-oriented economic reforms. However, in my field site villages, the *danwei* is still viewed as a place where permanent positions, and regular salaries as well as comparatively generous social welfare are provided. A yearning for stability contributes to villagers' admiration and envy of rural households with members who have access to stable *danwei* wage employment.

Shi Bingde's household provides an example of such a household. Shi is a man in his early sixties. At the time I met him, he was living on his own in Shijia. His wife had left the village nearly two years previously to live with their daughter in the county city and help her with childcare. Unlike his neighbours, who exhausted themselves diversifying their household livelihoods within and beyond agriculture in response to the decrease of household income caused by drought, Shi acted in a diametrically opposite way. Soon after his wife left, he abandoned all the household tobacco fields and only maintained a small plot of vegetable land as well as raising two pigs. According to Shi, as a single, older person, he was not able to cultivate tobacco on his own. However, unlike other single labourers, whose households suffered greatly during the drought, Shi did not fall into a miserable situation. In fact, agriculture had never been a main source of income for his family, for Shi had worked in the township junior high school for over twenty years. As a retired teacher, he had a pension of 1,200 yuan per month, a rarity among villagers of his age. The pension was sufficient to sustain him on a daily basis and allowed him to get water from the county market to cope with the drought. Therefore, his neighbours commonly said that while they worked hard in the fields during the drought, Shi lived a comfortable life.

Apart from the position of teacher, other kinds of regular salaried jobs available to rural residents in my field sites include serving in the army and working as regular factory employees.[63] In general, households with members who have access to these stable employment opportunities were viewed as being in an advantaged position in the drought.

[63] This refers to a permanent or long-term contract job in a factory.

However, in all the field site hamlets, households relying on a regular salary as the main source of income accounted for less than 5 percent of the total number of households. Consequently, in the remainder of this chapter, I only focus on explaining the variations among households with no regular salary to support themselves. Generally speaking, the immediate impacts of drought on these households took the form of decreases in water resources which led to crop failure and reduced productivity, and thus, caused a decrease in household income derived from agriculture. Meanwhile, the demands of securing enough water for both agriculture and domestic use were accompanied by rising costs associated with maintaining and replacing households' water storage facilities, such as wells, dams and storage tanks. Consequently, having a robust livelihood strategy, which provided stable income or created additional resources to cover the losses, enjoyed top priority in most households. In all the field site hamlets, livelihood diversification and intensification within and outside agriculture were the most widely adopted drought mitigation strategies.

1.1 Non-agricultural employment

Doing business

According to villagers, the most effective way of responding to drought was doing business, because compared with agricultural production, drought exerted very limited impact on business. The profit from successful business was much higher than the profit from farming.

The story of Zhao Wu's household provides an example. Zhao is in his early fifties. He lives with his wife and his parents-in-law in Shijia. As mentioned in Chapter 3, Zhao is the hamlet head of Shijia as well as the forest ranger of the administrative village. At the time I met Zhao, he was serving his second term as the hamlet head. Zhao has two children. His son went to Kunming, the capital city of Yunnan province, as a migrant worker, after he graduated from senior high school. His daughter Shi Ling was the first university student of Shijia hamlet, and since graduation has worked in Kunming's Subway Company. When Shi Ling was studying in university, her mother also migrated to Kunming, and worked as a waitress in an inn to economically and emotionally

support the girl's education. During that period, Zhao withdrew from his office work to ensure enough time to work on the farm as well as take care of his aged in-laws. After his wife returned to the village in 2011, he was re-elected as the hamlet head. At that time, the consecutive years of drought had greatly eroded his household's agricultural income. This pushed Zhao to seek off-farm opportunities. Meanwhile, his granddaughter was born in 2012 and was left with her maternal grandparents, who live in a county close to Kunming.

Zhao and his wife were eager to take care of the girl by themselves because she is considered part of their family, but this meant that their son and daughter-in-law needed to find local job opportunities better than their migrant work in Kunming.

In late 2012, the county government approved a new commercial street project. Zhao asked his son and daughter-in-law to bring their daughter back to the county city and run a restaurant on the commercial street. Both Zhao and his son were experienced chefs. The restaurant achieved great success in the first year and has maintained a stable income since. More importantly, it seems that running the restaurant not only helped the family escape the countryside when it was most heavily affected by drought, but also provided them with a stable place to stay and a stable income. This enable them to change their household registration and permanently reside in the county city.

Outmigration

Although doing business was viewed by villagers as the most favourable coping strategy, in all the field site hamlets, only a very small number of households were able to start their own business. One of the most common strategies villagers adopted in response to the great disturbances of agricultural production caused by drought was migrating out of the village in search of non-agricultural income earning opportunities.

While disaster events are not the only factor that may lead to migration, there is a consensus in global disaster studies that rural outmigration is a common strategy for coping with changes in climatic and environmental conditions as it helps improve the employment and earnings prospects of migrants, and it may also help rural households through remittances (Adger et al. 2002, Wodon et al. 2014).

The recent consecutive years of drought exacerbated the decline of agriculture in rural Yunnan. Consequently, within the province, governments at all levels actively promoted villagers' migration during the drought. Across the province, between 2009 and 2014, over 2 million villagers living in affected regions migrated out (Cui 2015, 5). Data from field site village committees also indicate an increase in the number of migrants, including both long-term and seasonal migrants, between 2009 and 2014. However, whether there was a strong link between the drought and Yunnan villagers' migration remains debatable. The most obvious problem here is lack of reliable village committee data. As one village cadre in Shijia commented, "Since migration is a fluid and forever changing activity, we don't have accurate figures on how many people are involved in migration. The county and township government keep encouraging villagers, especially young villagers to migrate out in response to the drought. According to the higher-ups, aside from earning incomes, migration was an effective way to lighten the burden of water shortages of rural households. Therefore, we reported a growth trend of villagers' migration to the township government to indicate the effectiveness of their policy."[64] "However, it does not mean that we provided fictional figures," he further argued, "It is common sense that since the middle and late 1980s, migration has become a common phenomenon in rural areas, and in recent years, more and more people are working outside the village." Similar claims can also be heard from village cadres in other field sites, thus illustrating the uncertainty of the connections between drought and outmigration in the field site hamlets. Moreover, some village cadres pointed out that since the government did not provide any concrete support to people who migrated out during the drought, they really could not tell whether the increase of outmigration was a response to the drought or was merely a reflection of the general social and economic trends in rural China.

Nevertheless, in all the field site hamlets, there were villagers who reported that their family members or neighbours, who were engaged in agricultural activities before the occurrence of the drought, left their home and found waged employment opportunities in the city in order to deal with the adverse impact of drought. In general, migration was usually undertaken by individuals. In each field site hamlet, only a very

[64] Interview with male village cadre, January 2014.

small number of households (less than 5 percent) migrated entirely. The issue of who migrated out within the household will be explored in Chapter 5.

Apart from long-term migration, seasonal migration to supplement income was also a common coping strategy adopted by households. Many households in the field site hamlets had some household members stay at home and work in the fields while others sought seasonal waged work in a nearby township or county. For example, I met Zhang Yunli in a township market. It was not a busy season for silkworm raising, so she was able to grow some vegetables and was selling them in the local market. Her husband was doing seasonal construction work in the neighbouring county. He left in November, after the couple had harvested all the silk, sold it to the silk company and cleared the land. According to Zhang, her husband would be back before the spring festival in February. He would join the early stage of silkworm raising, complete some of the labour-intensive tasks, such as growing mulberry trees, cleaning and fumigating the breeding room, then leave the village to find temporary work until the next harvest season.

Compared with other field site hamlets, Baijia had the least number of households engaging in either long-term or short-term migration during the drought. As the local industry in the region is much more developed than in other field site hamlets, it was more common for Baijia villagers to be employed in local businesses near their homes, such as the cement plant and quarry. Villagers generally went to work during the day, returned home at night, and quit the job during the busiest agricultural seasons. The number of these seasonal workers increased rapidly between 2009 and 2014, as the impact of drought on agricultural production became more severe. In 2014, 36 of the 58 households in Baijia had at least one member working in local industry; double the number before 2009.

1.2 Agricultural diversification and expansion

For those staying on the farm during the drought, diversification within agriculture was a well-accepted option. In Shijia, the onset of drought encouraged people to raise more goats and plant less land with tobacco, because compared with growing tobacco, goat-raising is more water and labour-efficient. According to Shijia villagers, herding

goats was not such labour-intensive work and the goats generally could feed themselves in the forest surrounding their village for most of the year. From late autumn to early spring, the driest seasons, they were able to grow drought-resistant vegetables, such as corn and melons, as supplementary food to feed the goats while in the pen.

Over time, however, it became more and more difficult for households to engage in both tobacco production and goat raising at the same time due to household labourers' outmigration and a consequent shortage of labour. In the early years of drought, about 25 of the 31 households grew tobacco and less than 15 households raised goats. However, by the end of 2014, the number of households raising goats had increased to 25, while only half the households still grew tobacco. The result was that nearly half of the land in the village, particularly land in areas where roads and water facilities were in poor condition or non-existent, was not planted. None of the households had given or subcontracted out land or received land from others, as all households in the village were faced with the same problem of labour shortage.

In contrast, in Baijia village, where there is a river nearby and the irrigation system is well developed, rather than abandoning tobacco fields, local residents expanded tobacco production during and in response to the drought.

As mentioned in Chapter 2, tobacco is a monopoly industry in China, and so villagers' choices in tobacco production are strictly constrained by government policy. Tobacco farmers are required to be licensed, produce according to quotas and sell their output to state procurement stations. In the period in which I conducted research, the average land which could be included in the local tobacco company's plan was less than 5 mu per household. Meanwhile, according to the villagers, the locally specified type of tobacco leaf required by the tobacco company was very difficult to grow, especially during drought, when the leaves were prone to disease, due to insufficient irrigation water. Between 2009 and 2014, a large proportion of tobacco leaves withered before harvest and the rest were generally poor quality after processing. Since tobacco leaves are sorted into grades, with the highest grade sold at about ten times the price of the lowest one, villagers suffered a great reduction in income during these years.

Even when farmers were able to maintain the quality of their produce, they faced problems, as the grading process was based on the subjective judgement of the

company's staff. It was very common to hear villagers complain that the price of their products was more closely related to their personal relations with staff working at the tobacco station than the quality of the leaves. Furthermore, the decrease in quality and productivity caused by drought in many cases contributed to households' failure to fulfil the requirements of the company, which meant that the following year, the tobacco company or its local agents reduced the area of land contracted or in extreme cases, did not renew the contract.

To deal with this, on the one hand, local farmers mobilised their social connections, particularly their connections with village cadres, to get as much land included in tobacco growing as possible. On the other hand, they used the small parcels of land easily accessed by tobacco company staff to grow the specified type of tobacco leaf, but planted more profitable types of tobacco leaf on larger, secret plots of mountainous land, which were unknown and invisible to company staff. They then sold the produce illegally to traffickers or to outside tobacco stations, with whom they had connections.

It should be mentioned that rather than being triggered by the recent drought, this kind of non-contract private production and illegal sale has existed since the implementation of the dual control policy in 1997 (see Chapter 2). During the drought, however, households depending on tobacco production and sales as their main source of income made more effort to further increase their income from illegal production and sales.

Despite being quite familiar with this situation, the officials from the local tobacco company and government combating illegal sales of tobacco were not always strict in carrying out their job. They often acquiesced in farmers' non-contract production and cross-regional selling as well as the activities of private tobacco traffickers, sometimes even themselves becoming actively involved in purchasing the non-contract produce to meet their own production quotas. The main reason was that the practice offered a certain degree of flexibility. During the drought, as with farmers in Baijia, villagers in many other affected regions also expanded production as a coping strategy. Local production therefore greatly exceeded the contract requirement. According to an official from the county tobacco company, they turned a blind eye to illegal sales because such

sales were an important channel for absorbing the surplus, and thus, maintained social stability in the tobacco-growing regions during the drought.

Consequently, as long as the "secret tobacco land" was not found during company staff's routine inspections, farmers were allowed to keep it. This explains why, at the beginning of my fieldwork in Baijia, villagers were quite reluctant to talk about the exact amount of land they planted with tobacco as well as their income from tobacco production, and were very unwilling to show me the location of their land. After they confirmed that I was neither an official from the local tobacco company nor a government employee, and I was not likely to reveal their secret production to the company, they allowed me to follow them to their household tobacco fields. The fields were small plots spread through the mountains, a fact unlikely to be known or discovered by outsiders who are unfamiliar with the environment and community.

Villagers usually completed their work of growing seedlings and transplanting on contracted land first, to comply with the tobacco company's strict regulations, meanwhile growing non-contracted seedlings and some wheat for livestock feed on their secret land. After the company finished inspecting the contracted land, farmers harvested the wheat and started to transplant their private tobacco on the secret land. Although growing the more profitable type of tobacco brought more cash income to the household, it was still very difficult for a household to sell out all the produce, particularly for ordinary villagers with limited social connections with those able to put them in touch with buyers. Most of them could only count on traffickers who generally did their purchasing in the village after the harvest of the contracted produce. Every year, large numbers of tobacco leaves remained unsaleable. Farmers had to use them as fertilizer to nurture their land for crop plantation in the following year, despite having spent most of their time and energy in the previous year growing and processing those leaves.

2. Household-level factors shaping experiences of and responses to drought

Previous studies focusing on the different impacts of climate change or drought on rural households tend to argue that households' capacity to adapt in the face of external stresses is largely determined by their flexibility and ability to change their livelihood strategy, especially by diversifying sources of income and intensifying efforts in particular income-generating activities (Thornton et al. 2007; Ingxay et al. 2015). This is confirmed by my fieldwork studies. In all the field site hamlets, the ability to engage in livelihood strategies, which provided economic security to the household during the drought, was viewed by villagers as critical to variations across households in experience of and response to drought.

My fieldwork studies also find that which of the strategies households adopted in response to drought, and how well the strategies succeeded while keeping workloads bearable, was shaped to a large extent by two key factors: the livelihood capital available to a household, determined by the social-economic status of a household, in particular, by whether or not any household members held political office; and the non-economic needs of a household, determined by the demographic composition of the household, and the position of its members in the life course. In the following sections, I explore these factors that shaped drought-coping strategies in detail.

2.1 Social-economic status, political office and access to livelihood capital

The impact of political office has attracted much attention in previous studies seeking to explain inequalities in wealth and power among individuals and households in rural China in the post-reform period. However, due to complex regional variations, evidence from surveys and local field studies have long supported opposing arguments about the impact of market reform on the value of political office in creating social differentiation in rural areas. For example, based on the survey of two suburban counties near Xiamen, Nee (1989, 1991) argued that market reform eroded cadre advantages. Cadres were not

more likely than ordinary villagers to become entrepreneurs, and when they engaged in business, they did not necessarily earn significantly larger incomes than others. Later studies have indicated that the findings from Xiamen could not be extended nationwide. For example, according to a national income survey Parish and Michelson (1996) found cadres' households enjoyed an advantaged position in the local economy. In areas where agriculture was dominant, cadres' households earned more from agriculture production than ordinary villagers' households. In more commercialized and industrialized regions, village cadres' households were more likely to establish family businesses and had more members in salaried employment and earned higher incomes from these sources. Through analysing data from a nationally representative sample of rural households, Walder and Zhao (2006) further argued that market reform did not undermine the advantages of political office-holding, but enhanced the relative earning power derived from office and kinship ties to office-holders. These findings are also confirmed in my fieldwork. In the field site villages, the position of village cadres is strong, as political office gives them sources of income and power that are not available to ordinary villagers.

In each of the hamlets I visited, cadres' regular salaries or allowances were not able to provide their households with sufficient income to cope with the drought. Village leaders' salaries were less than 10,000 yuan per year, higher than the average rural income, but much lower than that of successful waged labourers. Hamlet heads were paid even less; about 50 yuan per month. All the village cadres and hamlet leaders in the field sites worked only part-time in their government jobs, and also engaged in various other income-generating activities. Despite the relatively low salaries, there was competition among villagers vying for these positions, because being a village cadre provided other opportunities for gaining status and economic advantage.

During the drought, cadres' households enjoyed four main advantages. First, they had access to income-earning opportunities not available to ordinary households. Second, cadres' households were well positioned to take advantage of the most widely available income-earning opportunities in their locality. Third, cadres' political positions enabled them to get access to external help. Last, village cadres were actively involved in decision-making processes relating to the provision of drought relief, and in

some cases used this position to skew decisions in favor of their families, hamlets and villages.

(1) Accessing new income-earning opportunities

As mentioned in the previous section, with disruption to agricultural activities, obtaining off-farm work, in particular business opportunities, was one of the most effective ways of responding to drought. However, access to information about local off-farm business opportunities relies heavily on personal relations or *guanxi* between the household and economic and political contacts outside the village. Through negotiating with state officials and completing projects, village cadres are generally able to cultivate broader *guanxi* with these influential figures than ordinary villagers. Along with the managerial experience they acquire as cadres, these contacts are useful in providing information and smoothing the way for lucrative business opportunities. It is not surprising then, that in my field site villages, the great majority of business people are village cadres or those who used to be cadres.[65]

Take Zhao Wu, the hamlet head of Shijia as an example. Zhao's first term of office lasted over ten years, from 1997 to 2007. During that period, he successfully organized villagers to build the road connecting the hamlet and the village committee office. He was therefore awarded the title "outstanding cadre" by the township government and was recognized as a very able village cadre (see detailed discussion in Chapter 3). It was from this point onwards that his opportunities for contact with key external actors and institutions were dramatically extended. When he and his family decided to do business in the county city, as a senior village cadre with wide *guanxi*, Zhao was able to rent a shop on the commercial street at a very good price and successfully obtained start-up capital from the local rural Credit Cooperative. The restaurant achieved great success, which helped his household effectively respond to the income loss caused by drought. Meanwhile, having a restaurant in the county city also meant that Zhao had more opportunities to broaden his *guanxi*. Through treating people in his own restaurant, his social network was dramatically reinforced as well as extended.

[65] This does not mean that in rural China, the majority of cadres were or will be business people. It should also be noticed that many village cadres are elected because of their success in business (e.g., Zhang 2015).

Bai Rong, a former township cadre in Qujing, achieved even greater success in sustaining his household during the drought. Bai and his wife are in their early fifties. The couple lives with their son and daughter-in-law in Baijia, and Bai's youngest sister, brother-in-law and their two daughters also share the same housing compound. Except for his daughter who works as a nurse in Qujing, the entire family runs a farm home-stay (*nongjiale* 农家乐) together.

Bai Rong's family is one of the most influential families in Bronze County. He has three brothers and four sisters. At the time I met the family, only Bai Rong's household and his youngest sister's household were still in Baijia. The rest of the large family had moved to the township or county city. All his brothers were working in county-level government departments.

After graduation from senior high school, Bai and his older brother joined the army. Five years later, the two brothers retired. Bai went back to Baijia and then served as the head of the township, while his older brother became a policeman and served in the county police department. These political positions provided Bai's household and the larger family with necessary support for economic pursuits. In the early 1990s, the Bai family contracted 50 mu of barren mountain land. Since then, family members have worked together to cultivate the land. Various kinds of fruit trees, vegetables and cash crops were planted. Small reservoirs were built to breed fish. In 2002, the Bai family started a farm-stay, the first one in the county at that time. This farm-stay has brought a stable income to the family since its opening, with regular visitors from local government departments, factories and companies.

Compared with other villagers in Baijia, drought exerted a very limited impact on Bai's household income. According to Bai's daughter-in-law, water in their household wells and reservoirs was depleted during the drought, but they were able to hire a construction team from the county to dig a new deep well to fix the problem. As far as she was concerned, the biggest problem caused by drought was the poor fruit crop, which increased the cost of running the farm-stay because they had to buy expensive fruit from the market. The stable and relatively high income from the farm-stay also guaranteed household reproductive activities during the drought. Bai and his wife successfully arranged their son's marriage in 2011. Meanwhile, Bai's sister, who had

two daughters, one in university and one in senior high school, said that she and her husband were able to support their children's education and they did not feel any obvious increase in financial burden or workload during the drought.

(2) Taking advantage of existing income-earning opportunities

In all my field site hamlets, cash crop production is the main source of income for most households. As mentioned in previous chapters, the development of cash crop production in Yunnan has generally taken a top-down approach. Cash crops are introduced to farmers as a way to contribute to local financial revenue, such as tobacco production, or as a poverty alleviation strategy (in the case of walnut growing), or sometimes as part of the nation-wide revitalization of an industry (e.g., silkworm raising). Since villagers are thought to be backward and unfamiliar with markets, when local governments at different levels introduce cash crops, they retain control.

In general, governments control and monitor cash crop production through local agents, especially village cadres. Village leaders are expected to meet township government quotas for cash crop production. To mobilise villagers to achieve the quotas, cadres, in particular hamlet heads, are expected to take the lead (*daitou* 带头) and become role models, especially when a new cash crop is introduced. In most cases, they are afforded material incentives for taking the lead. To give one example, cadres are able to borrow start-up capital from the rural Credit Cooperative, which issues loans to others only when guarantors come forward. In addition, cadres are more likely to establish personal relations with key external figures, such as staff from tobacco and silkworm companies, which means they are able to take advantage in purchasing and grading practices. This not only ensures that their produce can be sold but also grants them a good price. More importantly, cadres are more likely to receive cash for their sale of produce. In contrast, ordinary villagers are generally given IOUs, which always puts them in a very difficult position financially, especially in hard times, such as during the drought. Consequently, cash crop growing affords economic incentives for villagers

to become cadres, especially hamlet heads, which is in other respects an unpopular position because of its low pay and heavy workload.[66]

Cadres' advantages have been most obvious in tobacco production, an industry that is centrally controlled. As mentioned before, in hamlets like Baijia, most households would prefer to have as much land included in the contract as possible, but the average acreage allocated under the local tobacco company's plan was less than 5 mu per household. However, cadres' households, and sometimes the households of their close relatives and friends have been able to get more land included in the plan.

(3) Accessing external aid

As analysed in Chapter 3, village communities' access to external drought relief was largely determined by key influential figures in the village, who had strong *guanxi* with external agencies. On the one hand, working with existing leaders and elites in village communities helped external agencies develop effective drought relief arrangements. On the other hand, it also reinforced leaders' status and power, and facilitated their households' and families' access to extra benefits from projects. For example, aside from funding collective water conservancy facilities, the anti-poverty program in Shijia also provided subsidies to households engaging in a scaled-up goat raising project and those who established walnut or pepper tree plantations. Despite the fact that the hamlet head and his family had abandoned both activities after starting up a restaurant in the county city, his household still received the government subsidies for goat raising and walnut tree planting. The program also provided financial compensation for the relocation of his brother-in-law's household goat pen; a payment not received by other households in a similar situation. Individuals who voluntarily helped villagers with drought mitigation also reported that they often provided administrative fees (roughly 300–500 yuan) to village cadres in appreciation of their help.

(4) Shaping decisions over resources distribution

In addition to gaining special consideration from external agencies, village cadres were even able to manipulate the provision of external aid. For example, apart from funding

[66] In my field site villages, hamlet heads only receive an allowance less than a tenth of a village leader. Meanwhile, village leaders usually pass the demands from upper governments down to hamlet heads, and ask them to work directly with villagers to achieve government goals.

small-scale water conservancy at the community level, during the drought, external agencies also provided funds used by local governments to subsidise rural households for constructing private facilities. One of the most widely covered project was the Loving Care Cistern Project (*aixin shuijiao* 爱心水窖). As will be explained in the next few paragraphs, village committees in the field site villages were responsible for determining which households received the subsidies. In three field sites, there were signs that village committee members were abusing their position by favouring their families and hamlets in the distribution of subsidies.

Launched between 2012 and 2015, the aim of the Loving Care Cistern Project was to build 1.6 million water cisterns (400,000 cisterns per year) to relieve water shortages in mountainous villages in Yunnan (Yunnan Provincial Committee of the CCP and Yunnan Provincial Government 2012). Funds for the project came from two sources. One source was earmarked funds from the Provincial Water Resources Department, accounting for 50 percent of the total funds. Another source, "special funds" (*zhuanxiang zijin* 专项资金), comprised donations from state-owned enterprises, public institutions (such as universities and public hospitals) and government departments from the provincial to township level. Specifically, provincial government agencies and other bodies provided fixed funds (1,500 yuan) for each cistern. Local government agencies and other bodies from the prefecture (municipality) level to the township level funded the rest of the cost. All the funds were allocated to the County Department of Water Resources in affected areas for purchasing construction materials, including sand, stone and cement. Therefore, rural households received materials subsidies rather than cash subsidies for water cistern construction.[67]

Each rural household in drought-affected regions was eligible to apply for these materials subsidies. The responsibility for assessing villagers' application lay with the village committees. Villagers first expressed their need to hamlet heads. Hamlet heads then reported the number of cisterns required and the situation of each applicant household in their hamlets to village committees. The committee members then decided which households were eligible for funding in that year. Before claiming the

[67] In my field site villages in Chuxiong and Qujing, households generally received construction materials valued at 3,000 yuan for each Loving Care Cistern. This only covered 70 percent to 80 percent of the total cost. Villagers were required to pay the rest of the cost by themselves. In counties with more donations, villagers may get higher subsidies to cover the total cost for the cisterns.

construction materials, applicants were also required to complete the construction of a cistern base following a certain model to ensure that their construction materials were used for building the water cistern. Staff from the County Department of Water Resources were responsible for checking their work.

At the time of my first round of fieldwork in late 2014–early 2015, village cadres in all the field site villages were busy initiating the last round of the Loving Care Cistern Project. All the cadres I interviewed agreed that this project was one of the most extensive water conservancy construction projects ever launched in their community, as every household in drought-affected villages was eligible to applying for the cistern. The cadres claimed that, although each year only a limited number of cisterns were allocated to their villages, since the program had been launched over four years ago, the total number of cisterns had met the needs of all households. In fact, at the later stage of the project, some cadres even complained about the difficulties of persuading villagers to apply for the cisterns.

This was most obvious in Baijia and Silk Hamlet. With well-maintained collective water conservancy facilities, residents in these two hamlets showed less interest in the project. Actually, all households in these two hamlets owned at least one cistern before the introduction of the Loving Care Cistern Project. Villagers generally funded the building of the facility themselves. Some households in Baijia also reported that they had received subsidies for building cisterns for the purpose of tobacco production (*yantian shuijiao* 烟田水窖) from the county tobacco company. Therefore, although the Loving Care Cistern Project was funded by the government, informants said that rather than building an additional cistern, they preferred to save their time and labour power for agricultural production or off-farm work.

In contrast, villagers in Walnut Hamlet, Shijia and North Hamlet were much more enthusiastic about the project. However, only villagers in Walnut Hamlet were pleased with the outcome of the project, whereas nearly 30 percent of households in Shijia and North Hamlet reported that they were not able to receive construction materials for the cisterns.

Household water cisterns were especially useful for villagers in Shijia and North Hamlet, where community infrastructure was in poor condition. According to villagers,

the main reason for their difficulty in accessing material construction subsidies lay with the policy of "building the cistern base first, and then getting the subsidy." This prerequisite eliminated from the project some of the neediest households, for example, households lacking the labour power needed to dig a base.

In addition, poor transport conditions, which constrained the communities' access to external help also exerted a negative impact on households' access to external aid. In all the study sites, free construction materials provided by the County Water Resources Department only reached the location of village committees. Villagers were required to find their own way to transport the materials from the village committee office to their hamlets. This further discouraged households without developed transport means such as motor vehicles, motorcycles or tractors from building a cistern.

Compared with villagers in Shijia and North Hamlet, more households in Walnut Hamlet reported receiving construction materials for the Loving Care Cisterns. With a well-paved road linking their hamlet to the village committee office as well as several paved intra-village paths, residents enjoyed a great advantage in transporting construction materials.

Informants in all these three field sites complained of village cadres manipulating the application process so as to benefit themselves and their relatives and friends to build more than one cistern, and of the difficulty experienced by those without connections in getting just one cistern. Cadres generally denied that they had ever manipulated the application process, but did admit to allowing some households to have more than one. According to village cadres, the number of applicants had declined sharply since 2014, whereas the upper-level governments still required them to meet an annual quota of Loving Care Cistern construction. To fulfil the requirement, they had to allow some households to have more than one cistern. Cadres also emphasized how hard they had tried to help every household in their village to get the subsidies. In one field site hamlet, since the hamlet head had strong connections with staff members of the County Water Resources Department, households in this hamlet were able to get construction materials and even cash subsidies for the cistern without digging a base as no one came to the village to check their work.

2.2 Household composition, life course and fulfilment of non-economic needs

In all the field site hamlets, when asked what kind of household had been most affected by the drought, villagers generally pointed to those with both young children and the elderly to support. By viewing the household as a unit of society, previous studies have pointed that changes to household composition arising from life-course events exert a great impact on household's economic arrangements. For example, Chen and Korinek (2010) posited that in rural China, the potential to reallocate labour into off-farm activities is related to the structure of household membership. In this thesis, I also draw on the "life-course perspective," to emphasize that the interconnection between household members' lives is strong and members act collectively to make adjustments according to changes in household and individual needs across the life course (Ibid., 965), and this plays an important role in shaping differences between households with respect to experiences of and responses to drought.

Most previous studies drawing on the life-course perspective have only focused on the impact of household composition on household economic activities but have failed to consider people's efforts to address non-economic needs across the life course of the household. Aside from enabling the diversification of income sources and the reduction of economic risk, strategies involving divisions of labour and cooperation among members of a household are important for the fulfilment of non-income-related needs, such as the care of dependants, the maintenance of family members' health and well-being, and the reproduction of the patriline. Of course, these needs continued during a drought. Informants in my field site hamlets repeatedly said that aside from engaging in income-generating activities, they were busy with arranging marriages for their son, raising and educating their children as well as supporting their aged parents. To stress this issue, this thesis emphasizes both economic and non-economic needs of households across the life course. The practical implications of this for understanding differences in household responses to drought are illustrated by the following stories.

Households with young and old members

Yang Ping and his wife are both in their mid-forties. The couple and their two school-aged children share a housing compound with Yang's aged parents in Shijia.

Yang's parents are in their early seventies and are in poor health and frequently hospitalized. At the time I met Yang Ping and his family, his mother was in hospital accompanied by his father. Due to poor health, the old couple had withdrawn from agricultural work several years ago. Meanwhile, Yang has a son in junior high school and a daughter in senior high school. Both are boarders and only return home on weekends and school holidays. Thus, Yang Ping and his wife are the only income generators and the main care givers of the household. The couple has never migrated out to seek wage work in the city because it is impossible to leave the village with elderly and young family members at home. Instead, they grow tobacco and raise goats. According to Yang Ping, life was very hard during the drought. "Both children's education and the older generation's medical treatment are costly, so, to secure sufficient income for the household, we have raised more goats and at the same time, have continued to farm tobacco," he said.

In rural China, children contribute labour power to their households,[68] but are nevertheless a heavy financial burden. Caregiving for children, especially very young children, can be time and labour-consuming for adult household members, and therefore potentially inhibits the diversification of agricultural activities or the take-up of wage work outside the village.

In addition, educating children is very costly. This is particularly the case for children in senior high school or university. Many informants with children in senior high school or university said that children's education accounts for the largest part of their total household expenditures and they invest most income from farm and off-farm work in guaranteeing their children's education.

Household education spending generally includes expenditures on school fees, textbooks, stationery and additional expenditures on clothing, food, and other boarding costs (Li and Tsang 2003, 228–229). In 2007, the state exempted all rural children from tuition fees for nine years' compulsory education. This greatly relieved the burden on children's education costs and strongly encouraged villagers to strive for their children to continue their schooling into senior high school, and in many cases, university. However,

[68] Children, especially those aged twelve years or more, usually help with farm work and domestic work on weekends and school holidays. In addition, it is very common for university students from rural households to engage in part-time jobs to support themselves or at least to relieve their parents' financial burden.

the costs associated with senior high school and university are still very high, and have increased rapidly in recent years. Meanwhile, due to the large gap between rural and urban education quality, rural students are generally less competitive than their urban counterparts in the national university entrance examination, which means that the vast majority are enrolled in low-ranking universities, which lack state financial support and hence, charge high tuition fees.

At the other end of the scale, since compulsory education in China starts from primary school, attending pre-school is considered a private activity. Parents voluntarily send their children to kindergartens or pre-schools at their own expense. However, informants from multiple field sites claimed that nowadays their children are not accepted by primary schools in townships or county cities unless they have previously attended a pre-school class attached to the primary school. Consequently, despite the high cost, the rate of participation in pre-school of rural children between the ages of four to six is high, and has increased in recent years.

The costs of keeping children in school for such a long time, from pre-school to university, are very high (in the field site hamlets, the expenses for supporting a child from pre-school to university generally range from 70,000 yuan to 100,000 yuan). The household economic burden is particularly heavy for those with more than one child concurrently in post-compulsory schools. Parents may endure chronic hardship to support these children. Nevertheless, children's education still enjoyed great priority even during the drought. Despite their bad financial situation, rural parents did all they could to support their children's schooling because they considered education to be a key pathway to a better future.

Like children, older family members contribute labour power to their household and family. In particular, the work that older people, especially women, do in caring for their grandchildren is often crucial to the household and family. However, just as children's education costs are a heavy financial burden, so too are the costs associated with providing care for elderly family members, who are no longer able to support themselves. Major differences exist in the primary sources of elderly support between urban and rural areas. Pensions are the most important source of financial support for

the urban elderly, whereas family support remains the primary mode of support for the rural elderly (Cai et al. 2012, 45–65).

Over the last decade, the Chinese government has initiated policies that seek to strengthen state support for the rural elderly. The key policy tool is the National New Rural Pension System. A pilot of the system was introduced in late 2009 and has been widely promoted. In general, the benefits of this new system come from two sources: a basic pension and personal insurance. The basic pension is mainly funded by the central government and local governments are expected to provide subsidies to participants. In western provinces, including Yunnan, the basic pension (55 yuan per person per month initially then increased to 60 yuan per person per month in 2012) is fully funded by the state government. According to the implementation measures of the New Rural Pension System in Yunnan (Yunnan Provincial Government 2009), rural residents aged 60 years or more at the time (2009) the policy came into effect are able to receive a basic pension regardless of whether or not they have paid premiums. Participants less than 60 years old are required to pay annual premiums until they reach the age of 60, after which they receive a pension.

However, the majority of elderly people living in rural areas still have limited access to state pensions. In my field site hamlets, most people over the age of 60 claimed that they are not able to receive the basic pension unless their children have paid their own premiums. The reason is that village cadres are under great pressure to meet a quota of people signing up to the contributory pension scheme. To encourage more villagers to participate, they manipulate the policy and sometimes detain villagers' basic pension. This aside, even those who receive their pension regularly (60 yuan per month), claim that it is not nearly enough to fulfil the basic requirements of life.[69]

Consequently, nowadays, the household and sometimes other family members are still responsible for providing most forms of social security to the elderly in the countryside. Aside from the pension, institutional support of those unable to work due to old age is provided by local governments only if there are no relatives to assume this responsibility and if no other private arrangement can be made. Therefore, as with young children, to secure the well-being of the very old, it is often required that some family

[69] Informants said that they need at least 200 yuan per month to meet basic needs, such as buying food and other daily necessities and paying water and electricity fees.

members, usually a son and or daughter-in-law, remain within the village to provide them with care. In my field site hamlets, informants in different age groups said that it is normal and acceptable for those in their late sixties to support themselves by cultivating their land, but if villagers over the age of 70 are still working on their farmland to support themselves, their neighbours usually show them great sympathy and look down upon their household members as irresponsible.

Unexpected loss of household members

Aside from the position in the life course of the household and its members, sudden changes to household composition, especially the unexpected loss of labourers, also shaped coping strategies during the drought. A single father living in Baijia provides an example.

Bai Jianyu is in his early forties. He lives with his two primary school-aged children. His household income from tobacco production declined by nearly 40 percent over five years, due to drought. However, with the help of his wife, he was able to plant more land with tobacco, and at the same time, work part-time in local industry. The income from expanding production and his off-farm work was enough to sustain the household on a daily basis as well as support the children's education. Unfortunately, however, Bai's wife died in a car accident in 2012, and this put great emotional and economic pressure on the household. Since then, he has had to support the household by himself. As a single person, he is limited in his ability to plant tobacco. Meanwhile, his critical responsibility for his children has bound him to the farm and inhibits him from migrating out in search of wage work. According to Jianyu, in order to maintain the basic needs of the household as well as support his children's education, he spent almost all the household's savings.

There is a similar case in Shijia. Shi Huacong is in his early thirties. During the drought, most villagers in Shijia undertook migrant work in response to income reduction caused by crop failure. However, without a female family member at home providing daily care for his child, a seven-year-old girl in primary school, Huacong was not able to leave the village in search of waged work. His mother passed away in 2010, and according to other villagers, his wife then left him due to the hardship of living in the village. As the only labour power in his household, he farms 3 mu of land with

tobacco. The income from tobacco production is just enough to maintain the household on a daily basis as well as to support his daughter's education. "It is so lucky that my daughter is in primary school. If she was a high school student, she would have had to drop out," said Huacong.

Alongside functioning as independent units of production and reproduction, both cadres' households and ordinary villagers' households at different stages of their life course maintain regular ties and relationships with each other, including both economic and cultural and emotional relationships. These ties and relationships within the community serve as a system of social support, which consolidates and expands resource control, and therefore, further shapes individual households' experiences of and responses to hardship and disaster, such as drought, in a range of different ways. These will be explored in the next section.

3. Social interactions between households

In the paragraphs to follow, I examine two activities relating to the interactions between households, which were particularly important in shaping household experiences of and responses to drought in my field site hamlets: labour exchange and land leasing.

3.1 Labour exchange

In all the field site hamlets, the exchange of labour between households was crucial to household strategies for responding to drought. Even though drought greatly disturbed agricultural activities, most households continued with farming. Informants reported an increase in their workloads due to the shortage of water for agriculture, and the absence of household members, due to migration. Meanwhile, lack of labourers due to outmigration made it difficult to hire labour from other households: every household confronted the same problem of labour shortage. Hiring someone outside the village was too expensive for most households who had suffered income reduction during the drought period. In these circumstances, households received from and provided to each other considerable assistance in agricultural work.

Take Zhang Yunli as an example. As mentioned in previous section, Yunli's husband did seasonal construction work in the city, leaving most silkworm raising work to her. During the drought, Yunli's neighbours, a middle-aged couple who planted mulberry trees close to Yunli's land, offered her considerable help in water fetching. When the couple used their tractor to transport water from downhill, they brought extra water with them to help Yunli fill her household water cisterns. In return, during the slack season, Yunli helped them to sell their vegetables in the township market. According to Yunli, she always gave priority to selling her neighbour's vegetables, and this usually meant failing to sell her own products. "I owe them a favor," she said.

Informants in Shijia and Baijia also said that during the drought, they frequently exchanged labour in various tasks in tobacco production so as relieve workloads. According to villagers, neighbours and relatives helped each other to till tobacco land, plant and transplant seedlings, and finally harvest leaves. In each step, they generally worked together and shifted from one household's land to another.

In general, villagers were not paid for helping their relatives and neighbours, but meals (in most cases, prepared by women) were usually provided. Besides meals, cigarettes for men were also expected. This kind of generosity was required for economic reasons, but it was also important socially to be generous and to be seen as being so. Villagers preferred not to receive assistance or to be able to balance or justify this assistance in some legitimate manner. Personal relations were, in these cases, more valuable than money. Informants from different field site hamlets kept emphasizing that in their community, money alone cannot do everything. They would rather work for free and claim credit for personal favours when they need help. The demand for this kind of mutual assistance reinforced existing relationships.

Labour exchange among households extended beyond agricultural work to caregiving. During the drought, most people present in the field site hamlets were grandparents taking care of grandchildren. Those with children in the same age group sometimes cooperated, assigning one adult from one household to send and pick up children from pre-school, letting the others concentrate on agricultural production as well as domestic

work.[70] At the time I was doing fieldwork, three households in Shijia and four in Baijia were involved in this kind of labour exchange.

3.2 Land leasing

Another kind of social support that villagers drew upon during the drought relates to the renting of land. In hamlets such as Baijia, where land is scarce and normally fully farmed by the household to which it is allocated, most households would prefer to have more land. Therefore, when one household leased land to another, it was considered a special favour. Although the leasing household usually paid rent in grain and sometimes in money, the leasing of land was not a purely commercial transaction. In these villages, agricultural land must be understood in the context of kin- and community-oriented considerations; its value was not determined solely according to supply and demand. The scarcity of land also implies that it was not readily available on the market and the opportunity to lease it was itself a matter of privilege. Thus, in most cases, land was provided to a closely related household within the same village.

Bai Rong's family provides an example. Apart from having contracted mountain land, Bai Rong's family also has use rights to the largest amount of farmland in Baijia. At the time of land allocation in the early 1980s, ten members in the household were eligible for land. After Bai Rong's parents passed away and his brothers and sisters moved away for work and marriage, all the family land was under the management of Bai Rong's and his youngest sister's households. However, once they started their farm-stay business, they spent less time farming. They rented out most of their land to their relatives and friends within Baijia, who were thus able to expand agricultural production in response to the drought. The family therefore, have been depicted by some fellow villagers as "offering generous help to their friends and neighbours during the drought."[71]

[70] Close kinship ties do not necessarily exist in this kind of cooperation among households. The general rule is that the children are similar in age, and are attending the same pre-school in the nearby township.
[71] Interview with female and male villagers in Baijia, March 2015.

3.3 Pig raising and the nurturing of *guanxi* between households

The availability of the above-mentioned support during the drought was associated with the relations, or more specifically, *guanxi* between households. As mentioned in previous chapters, particularistic ties such as kinship serve as a base for *guanxi*. For example, in close-knit hamlets such as Shijia and Baijia, close family ties and a recent history of some members being in the same household may minimize household barriers and create good connections. However, it should be noted that this is not always the case. Due to unpleasant experiences of household division (*fenjia* 分家),[72] the villagers with the closest kinship ties, such as siblings or sometimes even parents and children, may turn into strangers or enemies in the village. During the course of my fieldwork, I often heard villagers comment that "the heads of the household in those two families are siblings (or father and son) but they do not talk with each other." Thus, actively cultivating good personal relations is more significant than the natural occurrence of kin ties. *Guanxi* between households are continuously being shaped and reshaped. They can be weakened or vanish due to non-operation for a long time, but can also be enhanced and expanded due to intensive operation (Ye 2002, 237). Consequently, to have the possibility of support from other villagers always available, rural households put a lot of effort into nurturing *guanxi* through a range of different activities. As argued by Kipnis (1997, 25) "every time one invoked *guanxi* to achieve something in the world, one metonymically re-created that *guanxi*." Consequently, the practice of helping out and exchanging favours, including the above-mentioned practice of labour exchange and land leasing were not only the result of *guanxi*, but also important methods for *guanxi* building.

The need to nurture *guanxi* also explains why households kept raising pigs all through the drought, despite the heavy costs involved. During the course of my fieldwork, I found that nearly 90 percent of the households in both Shijia and Baijia raised several pigs every year.

It is very common to see people raising pigs in rural Yunnan. In general, a household consumes at least one pig each year, curing or sousing the meat after

[72] Household division (Fenjia) is a process in which an estate is divided and a household split into two or more households that live separately.

slaughtering. The rest are sold to middlemen. However, it is actually very uneconomical to raise pigs nowadays. The local price of live pig is less than 14 yuan per kilo, which means that a 100 kg pig can only be sold for 1200 to 1500 yuan, which is far less profitable than raising goats or cattle.[73] Moreover, raising such a pig usually takes six to eight months, while one year is the minimum time required to raise a pig to be ready for household consumption.

During the drought, raising pigs became even more uneconomical. A large amount of water and corn is required to feed pigs, which means that when water and labour power became scarce resources, villagers ran into difficulty providing enough water for pigs to drink, and growing enough corn for them to eat. When the productivity of corn production declined due to a lack of irrigation water, corn alone was usually not sufficient for feeding all the pigs. Villagers had to seek supplementary food for them, for example, growing melons and radishes on mountainous land and driving their mules to collect the vegetables during harvest season.

Giving up pig raising and selling one's pigs might seem a rational strategy for responding to drought, for it saves water, labour power and generates income, at least in the short term. However, my fieldwork illustrated that pig raising is not a vulnerable livelihood strategy which suffered great disturbances during the drought. Meanwhile, keeping pigs during the drought does not mean that households in my field site hamlets lacked the ability to renew or reorganize their livelihoods, and therefore, indicated their vulnerability. On the contrary, it reflected households' resilience to drought, as through the practice of pig raising and its associated activities, households in my field site hamlets were able to produce and reproduce *guanxi* between each other. *Guanxi* ties then, served as a network of social support and effectively constrained the adverse impact of drought on individual households.

In rural Yunnan, villagers usually slaughter their pigs in winter, from the end of November to early January. During this period, households with close relations usually help each other to kill pigs and share the "pig-slaughtering meal" (*shazhu fan*杀猪饭) together. Through this meal, *guanxi* ties among households within the same community are reinforced. As one of the most significant annual ceremonies in the village, the role

[73] The price of live cattle is about 30 yuan per kilo, while goats are more expensive, usually over 35 yuan per kilo. Meanwhile, cattle and goat manure can also be sold at a good price.

of the pig-slaughtering meal in nurturing *guanxi* is even more important than the spring festival, which focuses on household members' reunion.

During the pig-slaughtering season, most households invite kin, neighbours and friends in the same and nearby communities to banquets. For households with wider *guanxi*, pig- slaughtering also provides them with an opportunity to invite outside guests and help them further nurture their *guanxi* with these special guests. For example, when village cadres' households kill pigs, they often invite government leaders and employees at the township and county level, local police officers, local entrepreneurs as well as other powerful figures who provide or in the future may provide valuable resources for the household.

The number of pigs a household can afford to slaughter indicates the household's economic situation and social standing. Each winter, an ordinary household generally kills one pig for the slaughtering meal as well as for family consumption, while some wealthy households kill two to three pigs, and in some cases, up to five pigs, as they have more guests to treat.

When I started my fieldwork in Shijia, pig-slaughtering had just begun. The whole village was busy with this event. Nearly every day, there was a household killing a pig, and villagers were invited to help that household and enjoy the meal together. Even the village government had bought two pigs from villagers and killed them to treat the Party members at the annual village Party members' meeting.

Among all the 31 households in Shijia, in the year I started fieldwork, only two households did not kill pigs. One was a household of a young couple with two school-aged sons. The couple migrated out the previous year, and gave their pigs to their parents and other relatives to raise. However, the eldest son was bullied and refused to go to school soon after his parents left the village. So, the young mother returned from her migrant work to take care of the boys, while her husband continued doing construction work in another province. Because the household had no pigs, the mother and her two sons joined her parents-in-law's pig-slaughtering event. During our interview, she repeatedly said that she felt very embarrassed that her household could not kill a pig by themselves. The other household consisted of an old couple in their

seventies. They were too poor to keep raising pigs, so they sold them out to get some cash income before the pig-slaughtering season.

Pigs not only play significant role in annual ritual occasions such as the pig-slaughtering banquet, but also in irregular ritual occasions such as weddings and funerals, which, as noted above, were as important during times of drought as at other times. According to villagers, dishes with pork are indispensable for a wedding or a funeral banquet.

It should be noted that formal ritual occasions, such as weddings and funerals, also play important role in *guanxi* building (e.g., Yan 1996a, b; Kipnis 1997; Chang 2010). Previous studies have argued that gift giving and banquets during weddings and funerals plays a significant role in producing and reproducing *guanxi* between households. This was also the case in my field site hamlets. However, I found these practices were more important in the production and reproduction of *guanxi* between the host family and high-ranking guests, such as government officials, from outside the hamlets than between households within the hamlet. Within the same hamlets, informants said they rarely received from or gave gift-money to their fellow villagers on ritual occasions such as weddings and funerals. Instead, they emphasized the mutual aid between the host and the guest during the ceremonial events.

During my fieldwork, I participated in one wedding in Shijia and one funeral in Baijia. In both cases, the host households asked their fellow villagers to help with the events. Each helper received one yuan, wrapped in red paper, for their work. According to villagers, this could not be viewed as their wage, but was more like a kind of lucky money given by the host family. The real "payment" was the exemption from the need to pay gift money and the enjoyment of food served at the banquet. Villagers viewed the relations between the host households and the fellow villagers' households as reciprocity, and according to them, this reciprocal practice not only nurtured *guanxi* between households but also effectively cut down the cost of weddings and funerals.

On the one hand, with the help of fellow villagers, there was no need for the host households to hire people from outside to arrange the ceremony, which was always costly. Informants said that usually, they only hired an experienced chef (often from the same or nearby hamlets or villages) for the banquet. Some well-off households also

hired professionals for the events, for example, a camera operator or band, but generally speaking, host households relied heavily on the help of the fellow villagers. There was an obvious gender division of labour. Women were always assigned the task of cooking and cleaning, while men helped with slaughtering livestock.

On the other hand, informants said that since most residents in the hamlet were friends, families, relatives or neighbours, it was a mutual obligation to be involved in each other's life events. However, as most households in these two hamlets were not very well off, it would be a heavy financial burden if they were required to give gift-money at all the ritual occasions. The reciprocal practice was a great financial relief for them, as they were allowed to provide help instead of giving gift-money.

Consequently, many informants said that despite drought resulting in a decrease in income to their household, they were able to maintain ritual practices. Some villagers further claimed that as long as they could keep their pigs, their households were able to arrange wedding and funerals for their members.

In addition to ritual occasions, if a household has received substantial help from other villagers over a long period, it may need to kill a pig and provide a banquet to show appreciation for the generosity of relatives and the neighbours. It was common to hear villagers say that it is always very necessary for a household to keep a couple of pigs, for there often will be situations when they are expected to kill a pig to treat someone. Buying a pig at such a time was undesirable because pigs on the market tend to be poor quality and expensive. For example, in Shijia, the hamlet leader asked several households to help his family pick chillies during harvest season. He then killed a pig to treat those helpers.

Another example is house building. Due to the outmigration of young labour, households nowadays usually hire a construction team from outside to help them with house building. However, most of the preparation work, such as material purchase and transport, is still done by household members and their close relatives or neighbours. A meal and cigarettes are provided each time, and after the completion of the new house, a pig-slaughtering meal is expected for celebration and to show appreciation for the helpers.

Conclusion

This chapter has examined the strategies villagers adopted to sustain their household during the drought. These strategies were aimed not just at maintaining incomes and subsistence but also at continuing to meet non-economic needs.

Like most other rural settlements in China, observations in my field site villages indicate patterns of social inequality that divided village populations into different groups and shaped their experiences of and responses to drought. The most obvious inequality was between ordinary households and those of village cadres' or former cadres'. The latter were more likely to make use of personal *guanxi* to further income-earning activities, in order to minimize the risk brought about by drought and to create new opportunities. These advantages in opportunity are likely to extend to other closely connected households. Those with kinship or friendship ties to cadres were also likely to have advantages and the more direct the *guanxi* to rural political office the larger the advantage.

Apart from the differences and inequalities between cadres' and ordinary villagers' households, the nature of the coping strategies that households adopted in response to the drought, and the degree to which the coping strategies succeeded in sustaining and reproducing the household were shaped to a large extent by the life course and composition of the household. Constrained by the current childcare, education and elderly support institutions in rural China, households with both very young children and the extremely old, and households with children in university were more likely to be seriously affected by drought (and to have found it hard to adjust). In addition, unexpected absences of household members, resulting, for example, from the accidental death of important household labour power tended to exacerbate the impact of drought on households.

While frequently functioning as identifiable units of production and reproduction, rural households are not independent but maintain regular ties with members from other households within the same community. Households gain a great deal of support from these networks, which helps them effectively respond to changed circumstances, such as those occasioned by drought. Consequently, despite the reduction of household income

caused by drought, people did not fail to invest in building and consolidating kinship networks and social relationships in their communities.

My focus on households in this chapter does not mean that I view the household as a homogenous or internally harmonious unit. Within the household, members may not share the same perceptions of their situation and their needs and goals may differ. To achieve goals for both income generation and non-economic needs during the drought, members within households divided and shared labour, but the presence of unequal power relations within the household means that certain members benefitted more than others. In the next chapter, I will explore how these power relations between household members shaped variations in experiences of and responses to drought.

Chapter 5 Householding strategies and individual responses to drought

In this chapter, I look within the household. I draw on concepts of vulnerability, intersectionality and householding to explore variations in experiences of and responses to drought among household members of different ages and genders.

In studies drawing on the vulnerability approach, both gender and age are understood as key factors affecting people's health, capability, access to resources and opportunities, and therefore, as shaping variations in vulnerability to disasters (Wisner and Luce 1993; Cutter et al. 2003; Bankoff et al. 2004; Blaikie et al. 2004). However, in many empirical case studies and policy studies (e.g., Wiest et al. 1994; Ngo, 2001; Schröder-Butterfill and Marianti 2006; Babugura 2008; Juran 2012), gender and age are used merely as static markers to show that women, the elderly and sometimes children are always vulnerable and have difficulties in coping with crises associated with disasters.

Compared to men, women are commonly portrayed as being less educated and more dependent for their livelihoods on natural resources, while having less access to control of those and other resources, and lacking opportunities for involvement in decision-making processes. These constraints are viewed as limiting the coping strategies that women can draw upon and as making it more difficult for them to effectively respond to changed circumstances in disasters. For example, one World Bank working paper concerning disaster risk management in East Asia and the Pacific assumes that women often experience higher rates of mortality, morbidity and post-disaster diminishment in their livelihoods, and attributes women's particular risk to the impacts of disasters to lack of means to recoup lost assets, limited livelihood options, and restricted access to education and basic services (Trohanis et al. 2011).

Studies of vulnerability to disaster often also reproduce a stereotype of the rural elderly and children as lacking mobility, passive, weak and unable to look after themselves. For example, one study based on research in Brazil justifies a focus on the vulnerability of the elderly in the context of disasters by stating that "in addition to the decline in functional capabilities stemming from the aging process, multiple factors

contribute to reducing senior citizens' resilience, such as illness, obesity, disability, and living in at-risk areas, amongst others. Additionally, accidents at home or outside the home, together with illness and functional limitations, make the elderly even more vulnerable in disasters, as variables such as risk perception, state of alertness, attention, agility and mobility are compromised and hinder responses in these situations" (Bodstein et al. 2014, 172).

I argue that the assumption of greater vulnerability among women, children and the elderly is not entirely wrong, but it is a flawed generalisation. Gender and age do not mark out unitary and homogeneous categories. Women, children and the elderly are not necessarily vulnerable, nor are they all vulnerable in the same way.

The second weakness with studies taking the vulnerability approach is that they commonly measure vulnerability through the different coping strategies people adopt, rather than the different power relations between them in a given social context. The neglect of power relations not only runs the risk of reinforcing current gender and age stereotypes, but also constrains our ability to fully understand the factors contributing to vulnerability.

In response to these drawbacks, in this chapter, I examine gender and age within the household, as within the household, members are almost always differentiated by gender and by age (Folbre 1986, 245) and the household can be viewed as a site of gendered and intergenerational contestations, negotiations, compromises and cooperation (Douglass 2012, 4). These make the household an ideal site to analyse the dynamics of power relations between men and women, young and old.

I also draw on the concept of "householding" to explore how unequal power relations between household members of different genders and ages shape people's experiences of and responses to drought. As noted in the Introduction, "householding" refers to the strategies and processes through which households create and sustain themselves (Douglass 2006; Jacka 2012, 2). The term is used to convey the understanding that creating and sustaining a household is on an ongoing, dynamic social process that covers all life-course stages (Douglass 2006, 423). Most existing studies drawing on the conception of householding focus on migration, in particular international migration. Viewing migration as one of several manifestations of

householding, scholars examine the interactions of migration with the various other strategies contributing to the reproduction of the household to analyse household members' migration decisions (e.g., Huijsmans 2014; Korzenevica and Agergaard 2017). In this chapter, I introduce the concept of householding into disaster literature.

I draw on this concept in order to overcome a common weakness in existing studies of local responses to disasters. In most such studies (e.g., Madaha 2012; Sherval and Askew 2012; Habiba and Shaw 2014) household members' different coping strategies are analysed in isolation. There is a lack of appreciation of the embeddedness of these coping strategies in general household life. This tends to limit our understanding of different members' agency and potentially leads to a misunderstanding of their vulnerability or resilience to disasters. To overcome this limitation, I view the various strategies individual members draw on in response to drought as manifestations of householding, which aim at sustaining and reproducing the household during the drought.

To deconstruct the categories, "women," "men," "the elderly" and "children," in this chapter, I draw on the "intersectionality" approach. This approach emerged in the late 20th century, from critiques of white feminists' use of "women" and "gender" as unitary and homogeneous categories reflecting the common essence of all women. These critiques inspired feminist academics to recognize that a wide range of different experiences, identities and social locations mean that neither women nor men fit into any single social category.

The term "intersectionality" itself was originally coined by Kimberle Crenshaw, when she discussed issues of black women's employment in the US in 1989 (Yuval-Davis 2006, 193). The usefulness of this approach lies in bringing gender and other existing social institutions into the same analytical framework to understand how they relate to one another (Bastia 2014, 245). For Crenshaw, the focus was on the intersection between gender and race. Later scholars extended the concept of intersectionality to other socially defined categories, advantaged as well as disadvantaged. In general, the term "intersectionality" refers to the interaction between gender, race, and other social institutions and social relations that reproduce difference and inequality in individual lives and the outcomes of these interactions in terms of power

(Davis 2008, 68). The integrated, mutually constitutive nature of these institutions and relations is the central premise of the conception of "intersectionality." Since its inception, intersectionality has been heralded as one of the most important contributions to feminist scholarship (McCall 2005, 1771), as it reveals that individuals' beliefs about and experience of gender are profoundly shaped by the interlocking and mutually reinforcing vectors of different social identities (Nash 2008; Shields 2008).

In this chapter, I use the framework of intersectionality to explore how gender intersects and interacts with individuals' life course, shaping people's responses to drought as well as creating distinct structural locations and individual experiences in drought. In the following sections, I first outline the householding strategies adopted in my field site hamlets in response to the drought. I then examine how unequal power relations related to household members' gender and life course interacted and intersected with each other to shape these strategies, and, how householding strategies in turn shaped intra-household variations in individuals' experiences of and responses to drought.

1. Householding during the drought

To sustain and reproduce the household during the drought, most households in the field site hamlets divided labour between agricultural production, non-agricultural employment and work related to domestic chores and care.

Song Yuping's household provides an example. Yuping and her husband, both in their middle fifties, live with his parents and their two-year-old granddaughter in Shijia hamlet. The couple have two sons. The youngest son has served in the army since graduating from high school. Before the drought, the oldest son and his wife, the parents of the little girl, worked together with Yuping and her husband on their household tobacco land. As discussed in Chapter 3, in mountainous hamlets like Shijia, where local infrastructure is underdeveloped and in poor condition, the severe drought greatly disturbed tobacco production. Insufficient irrigation water and the low quality of water caused by drought brought diseases and pest infestation to tobacco leaves, which seriously reduced production and eroded villagers' farm incomes. According to Yuping, her household's tobacco production declined by about 60 percent over five years, so that

in 2014 they earned less than 10,000 yuan from growing tobacco compared with over 30,000 yuan in 2009. In response, their oldest son and his wife left Shijia and found waged work in Chuxiong, the prefectural capital, to earn their own income and sent 400 yuan per month to their parents.

Meanwhile, Yuping and her husband increased the number of goats they raised from less than 20 in 2009 to over 80 in 2015 and reduced the amount of land they planted with tobacco from 8 mu to 5 mu. However, goat raising alone did not bring in enough cash income to cover the household's expenses. In general, a goat weighing 40 kg can be sold for about 2000 yuan, but it takes over two years to raise a goat to that weight. Consequently, the couple kept farming tobacco to secure sufficient income for household consumption.

Yuping and her husband undertook all the income-earning agricultural work for their household by themselves. They generally worked together in both tobacco farming and goat raising. Sometimes, one of them had to carry their granddaughter on their back when they were tilling the tobacco land or herding goats in the mountains. Along with growing tobacco and raising goats, Yuping did most of the domestic work such as preparing meals for the whole family, cleaning the house and caring for her granddaughter and aged in-laws.

Both of Yuping's parents-in-law were over eighty and had long been in poor health. They were too weak to participate in tobacco production and goat raising. However, Yuping's father-in-law kept tilling small parcels of vegetable land for household consumption. Meanwhile, when Yuping was too busy with farm work or herding the goats, her mother-in-law Li cooked for the family and sometimes even took the responsibility of looking after her great-granddaughter. During my fieldwork in Shijia, it was very common to see Li carrying the little girl on her back when she was visiting people around the village.

As illustrated by this example, in all the field site hamlets, household agricultural production was done overwhelmingly by "middle-aged" couples like Yuping and her husband.[74] Many middle-aged couples, and, in particular, middle-aged husbands, also

[74] In this thesis, I distinguish between adults in three groups: "elderly people" (that is, those aged sixty-five years or more), "middle-aged" couples between the age of forty and sixty-five, and "young"

actively engaged in non-farm employment. They generally found employment opportunities in a nearby township or county city and quit the job during the busiest agricultural seasons. Zhang Xiuzhen and her husband provide an example. The couple are in their late forties and have two daughters, both university students. Every year, from April to October, Xiuzhen and her husband work very hard in tobacco production. When drought hit Baijia Hamlet, their income from tobacco growing suffered a serious decrease. To maintain the household income level and more importantly, to support the girls' education, the couple rented land from their relatives in the village to expand their non-contracted tobacco production. Meanwhile, after the tobacco harvest season, Xiuzhen's husband obtained short-term employment in a local cement plant, while Xiuzhen continued working on the farm to grow some vegetables for household consumption and undertook all the domestic chores.

In addition to doing most agricultural work and some off-farm work, the middle-aged were also responsible for caring for children and grandchildren, and sometimes for elderly, ill or disabled family members.

Along with middle-aged couples, another group of people present in the field site hamlets during the drought were the "elderly," that is those aged sixty-five years and above. Contrary to the stereotypical image of the elderly as being primarily dependants, most older people in my field site hamlets were active, able workers. Like Yuping's parents-in-law, during the drought, they worked hard to relieve the adverse impact on their household. In most cases, even though they were not the breadwinners of the household, they actively engaged in light farm work as well as domestic and care work to relieve the burden of the breadwinners. In other situations, without the support from other family members, some of the elderly still worked on their farmland to support themselves.

As mentioned in Chapter 4, informants in all my field sites reported that their family members or neighbours left home and sought waged employment in the city in response to the drought. Migration was usually adopted by young family members. Household survey data demonstrated that young single adults and couples between the age of eighteen and forty accounted for less than 30 percent of the total population present in

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single adults and couples, aged from eighteen to forty. As explained in the following paragraphs, my definition of these groups is a reflection of local social constructions.

the village. According to villagers, doing migrant work was not only a strategy that diversified household incomes. It also offered an opportunity to leave the rural areas, which was generally more affected by drought than urban areas.

2. Gender and the life course:

2.1 Responses of middle-aged couples

Studies undertaken in other parts of the world focusing on women's vulnerability to drought as well as studies concerning the drought in Yunnan mention that with an increasing number of men migrating to urban areas in search of employment, women are often left behind with the elderly and children to struggle with the drought (e.g., Gupta and Gupta 2003; Cui 2015). In contrast with this, during my fieldwork, I found middle-aged couples, i.e., married middle-aged men as well as women, comprised the largest proportion of the population resident in the field site hamlets. Of the 31 households in Shijia hamlet, 23 were composed of middle-aged couples and their families, while in Baijia, middle-aged couples were included in 41 of the 58 households. Informants from other field sites also reported that most households in their hamlets consisted of middle-aged couples and their family members. Although the great majority of people belonging to this group are grandparents, they are not considered by themselves or by other villagers as "elderly." They are viewed as the breadwinners and the main care givers of the rural household.

Middle-aged couples relied heavily on agricultural production, especially cash crops and animal husbandry to sustain their household during the drought. A minority of them had previously migrated out and worked in the city.[75] However, both middle-aged wives and husbands in the field site hamlets said they were very unlikely to seek long-term waged work in the city in response to the drought. "Because we are too old, no one is going to hire us."[76]

[75] In both Shijia and Baijia, less than 30 percent of people in the category "middle-aged couple" had migration work experience. Of these, over 80 percent were men. According to informants, men generally spent five to ten years while women spent three to five years working in the city, then returned to the village and engaged in agricultural work again.

[76] Interview with middle-aged couple, December 2014.

Both wives' and husbands' roles in the household production unit and as individual producers, was highly appreciated by villagers. Informants said that since most middle-aged couples had worked on the farm throughout their lives, they were fully equipped with the knowledge, and technical skills necessary for all the main agricultural activities undertaken in the area, including tobacco production, goat raising, silkworm raising and walnut planting. Wives, they indicated, were as able as husbands to make decisions and take actions to cope with the loss of crops and income due to weather or environmental changes during the drought.

These findings from my fieldwork challenge the views of the majority of Chinese studies concerning women living in drought-affected areas. In these studies, rural women are stereotyped as a homogenous group with "low quality" and "backward" ideas, which render them unable or unwilling to grasp opportunities or draw on advanced technologies or knowledge to deal with the changed situation caused by drought (e.g., Zhou 1995; Gao and Li 2006; Li 2009). For example, one study based on research in central and north China argues that women suffer more than men in drought-affected areas and blames women's suffering in drought on women themselves, specifically, their lack of education and consequent "spiritual poverty" relative to men (Zhou 1995).

Being assigned most of the work in agricultural production, middle-aged couples were more affected by drought than other family members. Both middle-aged wives and husbands in the field site hamlets complained that to ensure their crops were irrigated, they spent a great deal of time and energy looking for water sources, carrying water and figuring out ways to save water. They were exhausted and overworked. A middle-aged wife from Shijia said that when the water level of the hamlet well and reservoir was much lower than usual during the toughest period, in order to irrigate their land, every two or three days she and her husband drove their household tractor to find water in rivers nearby. "In most cases, roads to the river bank were too steep, inaccessible to the tractor. We had to walk down to the river with buckets, filled them with water, and then carry the heavy buckets back by ourselves. That was really a hard work."[77]

[77] Interview with female villager, November 2014.

Despite these shared responses and experiences, there were disparities between middle-aged wives and husbands. First, although middle-aged couples in the field site hamlets were rarely involved in long-term migration work, it was very common for them to seek seasonal off-farm employment in a nearby township or county seat in response to the loss of agricultural income due to the drought. However, as in Xiuzhen's case, in general, it was usually the husband, rather than the wife who engaged in off-farm work. According to villagers, this was partly because wives are typically paid less than their husbands. For example, in Baijia Hamlet, male labourers hired for local construction work were paid 100-150 yuan per day, whereas female labourers were paid no more than 80 yuan per day. Many male informants, including labour contractors and workers, said they believed female workers are as able as men, but it is a social norm for women to be paid less. In addition, middle-aged wives are expected to stay at home. In all the field site hamlets, both middle-aged wives and husbands emphasized that they each had responsibility for young children and the aged and this is what had bound them to the village. However, the existence of a dominant gender stereotype assumes that women are naturally better at caregiving and other domestic work than men. Consequently, as one villager said, "every household should have someone at home, to take care of children and the elderly, water the vegetables and feed the livestock. Men earn more outside than women, while women are better at looking after the household. So, it is better for women to stay in the village."[78]

This difference in access to off-farm employment between middle-aged wives and husbands was more obvious in Baijia Hamlet and Silk Hamlet. Despite the fact that local infrastructure such as road and water facilities were in better condition, the pressures on the wives was particular intense during the drought because they took sole responsibility for agricultural work as their husbands were in local industries. Even though their husbands generally came back during the busiest agricultural season, in most of the year wives worked by themselves. All middle-aged wives interviewed in these two hamlets said that they spent more time and energy on agricultural work than in years when there was no drought. [79]

[78] Interview with male villager, March 2015.

[79] It is impossible for me to quantify how much time and energy people spent doing agricultural and domestic work during or before the drought. However, as the following and later stories illustrate, many

The story of Zhang Yunli provides an example. As mentioned in Chapter 4, Yunli's husband only worked with her at the beginning and end stages of silkworm raising. The rest of the time, he was doing construction work in the city. According to Yunli, as required by the village committee in 2013, she and her husband planted more mulberry trees on their mountainous land. However, due to the drought, the rain water collected in water cisterns next to the land was rarely enough to irrigate the newly planted mulberry trees. Watering the trees was a task assumed by Yunli. Without a licence, Yunli was not able to use a tractor to transport water from the hamlet reservoir located downhill. She tried to drive the mule up and down to carry water, but soon gave up, as it was exhausted and not very efficient. "I used to drive the mule with pails on its back to carry water, and I knew people living in poorer and more affected areas were still doing it. However, since the government helped us build the hamlet reservoir and irrigation system in mid-2000, I have never done such heavy work. I felt so helpless when I saw that the trees were dying due to lack of water." Luckily, Yunli's neighbours, a middle-aged couple who planted mulberry trees close to Yunli's land, offered help, and in return, she helped them with selling vegetables in the township market (see Chapter 4). "To find water, everyone in the hamlet was working very hard. It is true that selling others' vegetables is extra work for me. However, it is much better them carrying water by myself," Yunli said.

The second disparity between the experiences of drought of middle-aged women and their husbands relates to the assumption that domestic work is women's responsibility. This means that middle-aged wives were more affected by drought than their husbands due to increasing workloads.

In all the field site hamlets, farming was viewed as a joint venture among married couples. However, when asked about domestic work, almost everyone agreed this is primarily women's responsibility. Both women and men said repeatedly that husbands as well as wives care for children and support their aged parents together, because emotional ties exist between family members regardless of gender. In reality, however, married women performed most of the caregiving work. Although in interviews many

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informants said that they felt they spent more time and energy on both agricultural and domestic work during the drought than in years when there was no drought.

men claimed that they are willing and able to help, in practice, middle-aged wives often were helped by other female family members, but rarely by male members.

For example, in my host family in Shijia, I found that Shi Limei, the middle-aged wife of the household, put in far more time than her husband Zhao Wu, the hamlet head, on domestic work. In general, she spent about six hours per day on domestic work including preparing meals for the whole family, cleaning the house and caring for her granddaughter and aged parents.[80] Her husband spent less than two hours per day doing such work. According to Limei, her husband was a good cook. Their friends and relatives in Shijia and the nearby hamlets always asked him to help with preparing banquets for important events such as weddings and funerals. However, he only prepared meals for his family when Limei was absent, usually when she was working on the mountainous vegetable land far away from their house. At the time I met the couple, Limei's mother was in hospital and Zhao Wu spent even more time than his wife looking after his mother-in-law in the hospital. However, when the old lady was discharged from the hospital and returned to Shijia, Zhao rarely became involved in elder care activities such as preparing water for his parents-in-law to clean their faces and feet. He also spent very limited time looking after his granddaughter.

Similar gender divisions of labour can also be found between old couples. Since Limei and her husband needed to commute from the village to the county frequently to help their son and daughter-in-law with running the restaurant, their aged parents had to undertake all the household work during their absence. Usually, the old couple worked together to farm vegetable land and feed livestock. However, it was always Limei's mother's responsibility to cook and clean the house, even though the old woman was over eighty years old and had suffered severe arthritis for many years.

According to informants, men only undertake domestic work and care work when there are no women in the household able to do so. "Shi Huacong (the single father with a seven-year-old daughter mentioned in Chapter 4) is the only man who cares about the issue of household chores in our village, because he does not have a wife at home," said one of the female informants in Shijia.

[80] This couple have an uxorilocal marriage.

Taking the responsibility of cooking, cleaning as well as looking after small children and the aged, it was the middle-aged wives who worried about and managed the water for household use, and extended periods of drought meant that more time and energy had to be spent by middle-aged wives to perform their gender roles. According to Shi Limei, during the toughest period, the water level of the hamlet well was much lower than usual. Every morning, she got up before 5 o'clock, two hours earlier than years when there was no drought, to fetch water as there was fierce competition among neighbours. Yang Ping's wife (see Chapter 4) had an even more unpleasant experience. Her house was the furthest one from the well, and was built on a steep hillside. It was a big challenge for her to grope her way through the dark in order to fetch water. "I fell one day, and almost broke my arm," she said. After they brought water home, these middle-aged wives started to rack their brains to save water. As Limei said, "I had only two buckets of water, but I needed to prepare food for five people, wash baby clothes, and the well might be dried up tomorrow. Every day, I had to figure out a way to fulfil different purposes with less water. The biggest challenge was to manage hygiene with such limited water. It would be a huge burden for me and my husband if the small child or the elderly got sick because of hygiene problems."

In addition, both middle-aged wives and husbands are widely involved in activities aimed at nurturing social relations between households. However, it is worth noting that women play a more significant but, usually invisible role in pig raising and associated activities mentioned in the previous chapter. Being viewed as a kind of domestic work, all tasks related to pig raising, including planting pigs' food such as corn and melons, processing the vegetables and feeding the pigs are generally assigned to women, especially middle-aged wives, and it is women's responsibility to prepare the pig-slaughtering meals.

Last, it is more difficult for middle-aged wives to achieve individual householding goals than their husband. Many previous studies concerning women's vulnerability to disasters have argued that compared to men, women's lack of opportunities for involvement in decision-making processes and key resources constrains the coping strategies that they can draw upon and contributes to their greater suffering in disasters (e.g., Schroeder 1987; Segnestam 2009; Sultana 2010; Juran 2012). During my fieldwork, I found that women's limited access to decision-making processes and

resources did not automatically lead to greater suffering during the drought. When middle-aged couples shared the same householding goals, they made decisions and worked together to sustain their household. However, when there were conflicting interests within the household, wives tended to follow the decisions of their husbands. This was because their relatively limited access to resources, especially up-to-date information, physical property such as land, savings and credit, and *guanxi* within and outside the community, constrained middle-aged wives from achieving individual goals.

In all the field site hamlets, middle-aged wives were not excluded from decision-making processes. On the contrary, they were actively involved. The middle-aged husbands interviewed repeatedly said that it is impossible for them to initiate plans and achieve goals without the involvement of their wives. For example, Shi Bingde, the retired teacher (see Chapter 4) said, "My wife is much more knowledgeable than me in terms of agricultural production. She decided coping strategies including which type of crops to grow, where to grow them and how much to plant." However, both male and female informants admitted that householding strategies during the drought were usually proposed by the middle-aged husbands and only rarely by the wives. The reason is that there is a gender inequality between middle-aged wives and husbands with respect to access to up-to-date information, such as new policies concerning the planting of the major household income-generating cash crops, and information concerning drought mitigation projects conducted by external agencies.

As elsewhere in rural China, in all the field site hamlets, local socio-cultural norms and local institutions lend weight to gender inequalities such as these. All those officially registered as heads of their households are men.[81] In contrast, none of the women had been made the official head of the household and thus, they had limited opportunities to attend household head meetings. Middle-aged wives in the field site hamlets reported that only if their husbands were absent from the households, did they act as household representatives and attend the meetings. This resulted in limited access to up-to-date information.

Consistent with the findings of Jacka and Wu (2016, 77), in my field sites, household meetings concerning cash crop production are held at the beginning of each year, at the

[81] This includes households practicing uxorilocal marriage, that is, households in which the husband lives with the wife's household.

administrative village level as well as the hamlet level to advise villagers on each growing and processing step of specific cash crops. According to village and hamlet cadres, over 90 percent of households send at least one representative to attend such meetings, because the information and instructions at the meeting may exert a significant impact on their household income. However, most attendees of the meeting are men. Women tend to be excluded from this occasion. When I asked about the latest policies of tobacco production and silkworm raising and the process of signing contracts with companies, most middle-aged female informants pleaded ignorance and referred me to their husbands, as the companies only sign contracts with the officially recognised heads of households, that are, the husbands. In contrast, most male informants were able to provide a clear explanation of both the policies and the details of their contracts.

In addition to informing villagers about the policies and processes of cash crop production, household meetings are sometimes held to inform villagers about the construction of both collective and household facilities. Such meetings increased in frequency during the drought, as a result of the increasing number of drought relief projects provided by external agencies. Compared with meetings related to cash crop production, in the field site hamlets, more women attended meetings relating to infrastructure construction. However, women's attendance rate was still lower than that of men.

Another important resource, lack of which constrains middle-aged wives' agency, is land. In rural China, land is a productive asset for farming and an important resource providing security. The policy of land collectivization in the 1950s removed land ownership, management and patrilineal inheritance from individual households and required all villagers to engage in collective farming. With the advent of economic reforms at the end of the 1970s, usage rights to agricultural land were returned from the collective to the household level again. This is the system that continues to exist today. Currently, land ownership in rural China is vested in rural collective economic organizations, which are entitled to administer, lease, contract use rights to and mange income from land and other collective-owned assets (Sargeson 2012, 37).[82] Rural

[82] In most cases, the collective owner is the village committee. Other collective organizations include the small group, village share-holding corporation and the township.

individuals are land contractors, with the rights to use and profit from the land as well as exchange their contract rights. However, legal usage rights to land do not ensure that all members within a household have equal usage rights in practice. Although the CCP has introduced laws and reforms bestowing women's right to land in rural areas since the 1930s,[83] in reality, the security and scope of men's and women's land contract rights differ.

The practice of registering land contracts under the name of the household head contributes to these unequal land entitlements between male and female household members. In theory, the name of all adult household members can be listed on land contracts. However, in my field site hamlets, nearly 90 percent of land contracts only included the name of the household head, who, as mentioned above, was almost always a man.[84] None of the hamlets had land contracts which only included the name of a woman, as their names were listed jointly with other household members. In the field site hamlets, most women did not feel this was a problem. However, some admitted that if there is conflict between husband and wife in terms of land usage, the woman does not have legal grounds to interfere in men's disposition of their household land.

Beyond limited access to land, women also benefit less from the output of their household contract land. In the field site hamlets, most households have only one savings account and the income from agriculture is deposited into this single account. This "household bank account" is always in the name of the middle-aged husband, while middle-aged wives rarely have bank accounts of their own, despite the fact that they perform a great deal of farm work.

Most middle-aged wives in the field sites claimed that husbands and wives have equal access to land and household bank accounts in their daily life. In addition, both male and female informants said that it is rare for a man to control all the household

[83] In the 1930s, the Jiangxi Province Soviet Government (JSG) adopted an agrarian reform law that facilitated the expropriation of land from a small group of landlords and distribution of this land among peasant households. The law granted women equal rights to land allotments, which the JSG expected would boost women's economic power. The 1945 Peasant Land Reform Campaigns of Yan'an, the then-headquarters of the communist government, also granted women equal rights to property. However, the laws failed in implementation when they conflicted with the socio-cultural norms of rural society (Duncan and Li 2001, 7–8).

[84] For similar findings for other parts of China, see Sargeson and Song 2010; Li et al. 2008.

property and decide as well as provide the money for himself and the household requirements without consulting or involving his spouse. However, as previous studies have pointed out, women's asset ownership improves their influence and well-being within households (Deere and Doss 2006; Sargeson 2008, 2012). When women have householding goals which are independent from their husbands, without registered and acknowledged property rights, their access to household assets may be constrained and in many cases, inhibits them from achieving their goals.

Aside from lacking access to physical assets such as land and savings, middle-aged wives also lack the social capital or right kind of *guanxi* to achieve individual autonomy. Many female informants believed that starting a small business in the township was a very effective way of responding to the drought. However, they also admitted that with limited interactions with key figures outside the hamlet, they were generally less informed about local off-farm business opportunities than their husbands. As a result, many of them gave up their ideas when they knew that their husbands had different plans.

The following story of Zhao Chunmei, the wife of the hamlet head in Baijia, provides an example, which illustrates how limited access to physical assets as well as social capital constrains middle-aged wives from achieving an individual goal. When the drought disturbed tobacco production and thus affected the household income, Chunmei's initial plan was to give up tobacco production and open a grocery store in the township. She said that her husband knew someone in the township who could help them rent a place on a market street with a very good price. However, her husband was under pressure from the village committee to become a role model to grow a new breed of drought-resistant tobacco. As a result, he decided to continue farming the tobacco fields and expected his wife's labour contribution. "I am really tired of planting tobacco under such hard climatic conditions. However, it is his land, and he decides what to grow. Moreover, opening a store needs money. Our household bank account is in his name, and he has already invested most of the household savings in the new breed of tobacco seedlings. It also needs the help of some friends. But these are his *guanxi*, I am not able to mobilise them. So, I have to give up the business opportunity and keep farming the tobacco land with him," she said.

Apart from lacking *guanxi* outside the community to achieve individual goals, middle-aged wives' ability to cultivate *guanxi* is also constrained by gender inequalities. For example, access to off-farm employment provides an important way to cultivate connections outside the community. However, as mentioned before, gendered salary discrimination combined with socially assigned gender roles reduces middle-aged wives' off-farm prospects.

Holding political office also plays an important role in cultivating broader social relationships with economic and political contacts outside the village. However, enduring gender social norms and social institutions, such as patrilocal marriage and the gender division of labour, whereby women are concentrated in domestic work, continue to keep important positions a male preserve. Rural women are popularly portrayed as less competent for political office and are expected to stay away from public affairs because they are viewed as less educated and more economically dependent, and as having greater responsibility for the domestic sphere (Wang and Dai 2013).

The Chinese government has been keen to promote women's political participation in rural areas, and an electoral gender quota has been introduced in village governance. Article 6 of the Organic Law on Village Committees[85] stipulates that "the members of a village committee shall include at least one woman." This was further stressed by the Program for the Development of Chinese Women (2011–2010), which was issued by the State Council in 2011. The Program required that at least 10 percent of the members of village committees should be women. These institutional arrangements have effectively increased the number of women participating in grassroots governance. However, in practice they have also acted as a cap on women's numbers. My research confirmed the findings of some previous studies (Howell 2006; Guo et al. 2009) that women are a minority among members of village government. In all the five villages I visited, the village committees include one woman, but only one.

Moreover, the current institutional arrangements have enhanced the reproduction of gendered roles among those in village government (Jacka and Sargeson 2015). Compared with their male counterparts, the female village committee members generally play an insignificant role in rural power structures. In all the field site villages,

[85] The law was first introduced in 1998 and amended in 2010.

none of the women cadres holds the directorship of the village committee or the village Party committee. All serve as the women's director (*妇女主任 funü zhuren*), who is usually assigned responsibilities associated with reproductive and domestic activities, such as family planning, women's work (*妇女工作 funü gongzuo*)[86] or health issues, but is rarely involved in tasks such as economic development and infrastructural construction. As a result, even if women do get into positions as female committee members, they continue to have less opportunity to establish the right kind of *guanxi* with key outside actors.

While middle-aged wives do not often have access to extra-village ties through the work and political channels available to men, within the village they are also substantially constrained in their social interactions. The great majority of middle-aged wives are married close to their natal village within the same administrative village or township. However, most have limited opportunities to nurture their relations with their natal family members. Patrilocal marriage separates middle-aged wives from the protection of their natal family and natal village and moves them to a new place where they have few social connections. Although most middle-aged wives I interviewed said they have established new connections and gained a great amount of help from these new connections within their husbands' community, many of them pointed out that these extra household contacts are generally subsumed under the umbrella of their husbands' lifelong village ties. The result is that when there are conflicts within the household, they tend to lack social support. As one middle-aged woman commented, "If I fall out with my husband, everyone will be on his side, because all the villagers are his relatives, and I am an outsider."[87]

The inequality between middle-aged wives and husbands in terms of realization of individual householding goals contributes to middle-aged wives' greater suffering during the drought. This is best illustrated by the following example.

As mentioned in Chapter 3, to relieve the impact of drought on rural residents, the provincial government of Yunnan designed the Loving Care Water Cistern Project.

[86] In my field site villages, women's work usually includes understanding and conveying the instructions of the higher-level Women's Federation, making local women's development plans and popularizing laws on the protection of women and children.

[87] Interview with female villager, January 2015.

Over 80 percent of middle-aged wives interviewed expressed great interest in the project. As mentioned before, middle-aged wives were generally responsible for some agriculture work and most domestic work, both requiring relatively large amounts of water. Consequently, building cisterns next to their houses and land greatly relieved their workload, in particular, the burden of carrying water long distances. More importantly, according to these informants, household cisterns were the most important facility for water storage. Although generally speaking, most households in my field site hamlets were equipped with more than one cistern, informants said that some of the cisterns were in disrepair and unable to store much water. An additional cistern could help them better prepare for a drought in the future. However, many female informants had to give up the idea of having a new cistern because the absence of younger labourers, and also the frequent absence of middle-aged men, employed in local industries, made it an impossible task for them to build the cisterns.

According to some female informants, before submitting the application for the Loving Care Water Cistern, they called their husbands to ask if they would be able to come back and participate in the preparation work, digging the base of the cistern. However, few husbands were willing to terminate their work and return to help. "My husband always said his work is much more important than building my cistern. He said that we have already got two cisterns, why should we waste money to build another? But he had no idea how difficult it is for me to get water from a leaking old cistern. During the driest period, not one drop of water was collected, I had to drive the mule and walk long distances to fetch water from the hamlet well or reservoir. And when I brought the water home, due to the leakage problem, I was not able to store it in the cistern. At that time, I felt restless and exhausted, but since I was not able to build a new cistern without his help, I had to make do."[88]

2.2 Responses of the elderly

Declines in physical health meant that people over 65 had fewer options when it came to responses to the drought, relative to both young people and middle-aged couples.

[88] Interview with middle-aged wife, November 2015.

None of the villagers belonging to this group of "the elderly" were engaged in off-farm work. In general, their experiences of and responses to drought were closely related to the amount of social and economic support that other family members provided to them.

In the field site hamlets, because they received income support from their children, some of the elderly were able to partially or completely withdraw from farm work. Therefore, drought exerted very limited impact on their daily life. However, they were not passive dependants, but constantly contributed to their households. Studies of retirement decisions in rural China suggest that rural elderly "work until they drop" (Pang et al. 2004). This is also confirmed in my field site hamlets. Informants repeatedly said that as long as they are mobile, they keep working.

For example, Bai Jian lives with his wife in Baijia Hamlet. He is in his late sixties, and she is over seventy. The couple has two children. Their daughter is married and lives in the township. Their son and daughter-in-law live in Baijia and take major responsibility for supporting Bai and his wife. Bai had a heart attack in 2007, after which the old couple withdrew from tobacco production and gave their tobacco land to their son's household to farm. Since then, the old couple has only tilled small parcels of rice and vegetable land for household consumption. The majority of their living costs have been covered by their son and daughter-in-law.

During the drought, the household of Bai Jian's son suffered a great decline in income. As with other middle-aged couples in Baijia, Bai's son and daughter-in-law expanded their production to make up for the losses. In the meantime, the son got a part-time job in a nearby quarry. Bai and his wife also re-joined tobacco production to relieve their children's burden. They helped with light work such as composting and transplanting. "They are so busy, and we need to do something to help them. Growing tobacco is definitely hard work, but we are accustomed to it, and besides, it is for the family," said Bai Jian. Meanwhile, Bai's wife helped her daughter-in-law with some domestic and care work such as cooking and looking after her two school-aged grandchildren.

Despite the considerable effort old people have devoted to both production and reproduction work to sustain their households, cultural stereotypes of the elderly as unproductive influence their positions in the household and generally exclude them

from household decision-making processes. Many old people with whom I talked in the field site hamlets described themselves as hard-working farmers having the responsibility of helping their adult children through the hard times of the drought, but they rarely said they made an individual contribution to the household.

Elderly men in my field site hamlets were likely to be even more deprecating of their abilities and contributions than women. As argued by Jacka (2014, 202), even after they have become too frail to work in the fields, women continue to be appreciated for their domestic work and childcare, whereas men, once they are no longer able to work either in waged labour or on the farm, tend to lose their respected role as breadwinner.

In contrast with the elderly who were supported by their families and therefore, less affected by the drought, old people who were unable to fully support themselves due to physical constraints, and were also unsupported by their children for various reasons lived in a miserable condition during the drought. In Shijia and Baijia, slightly less than 30 percent of old people belonged to this group. Yang Rucai and his wife, both in their seventies, provide an example.

When I was doing my household survey in Shijia, I asked villagers which household suffered most in the drought in their community. Over 70 percent of informants referred to Yang Rucai and his wife. The couple has three adult children. Their only son, who works in Kunming, has not provided any economic support to his parents since leaving the village five years ago. According to other villagers, he has an internet addiction problem and what he earns barely covers his own expenses, let alone supports his aged parents. The couple also has two daughters; both of them are married within Shijia. The elder daughter's household is one of the wealthiest in Shijia, with the largest number of goats. However, the son-in-law has always looked down upon the old couple and refuses to provide them with any help. He has never invited his in-laws to his household for a cup of tea or for the pig-slaughtering meals and has prevented his two daughters from visiting and showing their respect to their grandparents.

During the course of my fieldwork, Yang Rucai's younger daughter and son-in-law were doing construction work in Guizhou Province. According to Yang, they left the village for off-farm employment in 2013, because tobacco production was unprofitable after consecutive years of drought and they had limited savings to invest in goat raising.

Since the young couple has a school-aged boy to support, they send very limited remittances to their parents (about 1000 yuan in each Lunar New Year). Before their migration, they helped Yang and his wife with tilling their land as well as herding and feeding their domestic livestock. After they left, the old couple had to undertake all these tasks by themselves. They were too weak to grow tobacco, so instead, they tilled 3 mu of land with vegetables and raised two pigs and three cattle.

When drought disturbed the daily life of villagers in Shijia, Yang and his wife encountered a great crisis. Yang's household used to share a small collective well with four other neighbouring households. During the drought, the well dried up. The neighbours complained about two households, who always overused the ground water. However, the two households insisted that the drying of the well was caused by water shortage, and therefore, refused to take any responsibility. Meanwhile, these two households worked together and dug a new well for themselves. In response to this, the other three households, including Yang's household, also planned to dig a new well together. The old couple were too poor to afford the construction fee, so they negotiated with their neighbours and they made an agreement that Yang could use the well but would be charged 40 yuan per month for the water bill. However, several months later, Yang and his wife were accused of wasting and overusing water by their neighbours and were declined access to the well. Since then, the old couple have had to walk long distances to fetch water from the village collective well. Even worse, Yang Rucai was diagnosed with a brain tumour at the end of 2014. From then on, his wife undertook all the agricultural and domestic work by herself, and in order to pay the medical fees for her husband, she sold all the livestock to her elder son-in-law, but only received about 10,000 yuan, definitely an uneven trade.

2.3 Responses of young people

Just as in other parts of China, in my field site hamlets, young adults as well as their children generally have a highly valued place in their family. Consequently, there is a tendency for householding strategies to favour the younger generations. In particular, when rural households experienced a severe decline of household income during the

drought, most still prioritised raising and educating children as well as arranging their marriages.

As mentioned in Chapter 3, in rural Yunnan, some rituals, including young people's weddings, are as important during times of drought as at other times, and it is unimaginable for villagers to cater for a wedding without killing pigs. Many middle-aged informants said they knew that pig raising was very uneconomic and they were really tired of it, but since their son(s) had not found a wife, they still needed to keep pigs (in some cases, even cattle) for his wedding. Meanwhile, many middle-aged parents like Xiuzhen and her husband with whom I talked in the field site hamlets tended to interpret their well-being exclusively in terms of their hopes for other family members, especially the hope that their son would find a wife or their children would enter university.

Another aspect of young people's advantaged position in householding during the drought is related to migrant work. According to villagers, migrant work was more desirable than staying in the village because farm work was more affected by drought than migrant work. More importantly, advanced infrastructure in the city would be more effective in mitigating the impact of drought than in rural areas, where local infrastructure was generally in poor condition. Therefore, rather than bonding their children to the village, the middle-aged and elderly parents and grandparents encouraged them to migrate out in search of better job opportunities as well as living conditions in the city. In Shijia and Baijia, nearly 80 percent of migrants were individuals or couples aged eighteen to thirty-nine.

The advantages of migrant work during the drought were confirmed by migrant household members. Most of the migrants I interviewed, especially young people between the ages of twenty to thirty-five, appreciated the opportunities that migration offers. Informants described a life before they migrated of hardship and precariousness accompanied by a constant lack of water, income for basic needs and employment, and generally agreed that working in the city had greatly reduced the impact of drought on their daily life.

However, it is worth to noting that limitations on rural migrant workers' citizenship rights and living conditions, due to their rural *hukou*, meant that they may have suffered

more than their urban counterparts during the drought. All migrant informants shared their frustration with housing conditions in the city. Urbanization has caused a shortage of housing in many cities, with resulting housing conditions for migrant workers being suboptimal. Overcrowded dwellings in poor condition tend to be the norm for new migrants and during the period of drought, these migrant settlements were particularly affected by planned water outages. For example, between 2010 and 2013, the Kunming Water Supply Company initiated a regional water outage in response to the reduced water pressure caused by drought. According to all the migrant informants who lived in typical migrant neighbourhoods, they suffered frequently from this planned water outage. However, interviews with local residents living in different regions of Kunming suggested that the coverage of this planned water outage was very limited. Only a few urban informants reported that they had experienced water outage during the drought. Some said that they read about this news in the newspaper and stored enough water in advance. However, the planned water outage never reached their neighbourhoods.

Another aspect of young people's advantaged position in householding with respect to migration is related to remittances. Some studies indicate that migration and remittances increase households' ability to respond to climate shocks. For example, using longitudinal data on livelihood sources, one study in coastal Vietnam argues that remittances have positive effects on household resilience through increased consumption or capital investment (Adger et al. 2002). Another study based on research in Yemen further points out that in areas with an unfavourable climate, remittances help to meet basic needs, while in areas with a more favourable climate, remittances may be used more for investments (Wodon et al. 2014). Some cross-country and country studies also suggest that with remittances helping households to cope with the effect of climate and other shocks, migration and remittances tend to increase in response to the shocks (Schiantarelli 2005). However, in my field site hamlets, migrant informants, in particular informants between the age of twenty and thirty, said they rarely send money to their rural households.

Interviews with household members staying in the villages confirmed this claim. In Shijia and Baijia, less than 30 percent of household received remittances from migrant members. This finding is in contrast with some studies taken in other parts of China which argue that remittances from migrant members contribute significantly to

household income in rural China (e.g., Du et al. 2005; Wang 2010; Liang et al. 2013). According to both middle-aged and elderly villagers, most of their household incomes were from agricultural production and local off-farm employment. Meanwhile, in contrast with studies suggesting migrant remittance behaviour is responsive to family needs (e.g., Taylor et al. 2003; Liang et al. 2013), in my field site hamlets, there were no obvious changes in terms of migrant remittances in response to the decline of rural household income due to the drought. Both middle-aged and elderly villagers said that they did not depend much on remittances from young migrant family members during the drought. This could be explained by "the culture of remittances," which emphasizes that "expectations and norms for remittances that are developed in these migrant-sending communities over time define and govern patterns of remittance behaviour" (Liang et al. 2013, 137). For example, when asked if her sons send regular remittances, Yuping replied: "they wanted to offer more, but we didn't accept it. The children's lives are not easy. It is difficult to make a living in the city. As long as we are mobile and able to work, they don't need to provide for us." This attitude toward young migrants' remittances was common in all field site hamlets.

Few migrant workers become successful entrepreneurs or labour contractors, while the vast majority are employed as cheap labour with minimal incomes, which in most cases are only just adequate to support themselves and their households. Consequently, young migrant family members generally were not expected to send money back during the drought, as long as their parents were still able to work on the farm. Sometimes middle-aged parents even covered migrant children's travel and living costs before they settled down, and bore part or even the full cost of rearing their grandchildren.

Although remittances were not required, migrant members were expected to return home once in a while, especially during the period of Chinese New Year and for some special occasions, such as the weddings and funerals of family members. Over 80 percent of migrant informants said they returned to their rural households at least once a year, and brought gifts, usually food, clothes and toys for small children with them. However, few informants returned to help cultivate the land held by their family in the busy farming seasons, despite the fact that most rural households suffered from a labour shortage during the drought. According to them, this was in part because they needed to

keep their jobs, which were generally not easy to obtain. In addition, it cost money to travel and also maintain housing in the city.

It should also be noted that young people's greater advantage in rural householding during the drought did not mean that they were freed from the responsibilities for rural householding. Evidence from my field site hamlets suggested that the coping strategies, particularly migration adopted by young people, especially those who were between the age of thirty and forty, were influenced by the well-being of other household members, in particular, the well-being of their parents. Young informants in the field site hamlets repeatedly said that the decision to migrate during the drought was conditional on the ability of their parents to work. It was rare for all young people in a family whose parents were in poor health to seek employment opportunities far away from their home. In this situation, at least one of the young family members, usually a young wife, was expected to stay at home and look after the parents. Sometimes, young husbands also withdrew from migration work and joined in the caring work if the parents needed more support.

For example, I met Zhang Zhenghua, a thirty-six-year-old from North Hamlet in Kunming. According to Zhenghua, during the drought, he and his wife planted tobacco in the hamlet. This was quite unusual in North Hamlet. At that time, over 80 percent of young people like Zhenghua adopted migrant work as their livelihood strategy. In fact, Zhenghua had worked in Kunming since 2007. After his migration, his father was the major breadwinner and care giver of the rural household, because his mother had been suffering severe mental disability for over ten years. However, his farther slipped down when he was tilling the vegetable land. A thigh injury greatly hindered his mobility. As the only son, Zhenghua returned with his wife to look after his parents and farm the tobacco land. The young couple spent nearly three years in the hamlet and returned to Kunming in 2014, when Zhenghua's father was fully recovered.

In terms of the gendered disparity between young men and women in experiences of and responses to drought, many young wives recognized the unequal gender divisions of labour as a factor, which contributed to their greater suffering. According to migrant women, living in the city did not release them from doing most domestic work including water-related work such as cooking and cleaning. Due to the frequent water outages in

their community, informants said that they spent longer hours on water storage and more energy on water management, and thus, enjoyed less leisure time than their husband. Some informants also mentioned that if members of their rural household required care and support, it tended to be wives' responsibility to return home. For example, a young wife from Shijia said that when her fourteen-year-old son refused to go to school soon after she and her husband left the village for waged employment, she was the one who went back to the village to look after and persuade the boy to return to school, while her husband continued doing construction work in Guizhou Province.

Moreover, most of the female informants admitted that as with middle-aged wives, the existing unequal gendered access to resources, such as *guanxi* with powerful people, constrained the range of coping strategies they could draw upon. However, they claimed that they were less affected by the drought compared with their mothers and grandmothers. The reasons for this were three-fold, as follows.

First, while fewer middle-aged wives than middle-aged husbands were engaged in off-farm employment, in the field site hamlets there was no significant disparity between young single women and men in terms of migration opportunities. It is true that many young wives return home to give birth to children and stay with their children in their early childhood. However, quite often, as the children grow older (usually after the age of two), they migrate again, with or without the children. Meanwhile, young informants said that nowadays, they enjoy great autonomy and are able to carve out lives independent from their parents. Most of the young women interviewed said that their parents supported both daughters and sons to obtain better employment opportunities in the city, because migration had become the norm for young people in rural areas regardless of their gender. In addition, informants claimed that they experience more autonomy in urban areas than they did at home. They enjoyed their time working in the city, because they could earn more and could experience a life different from that of the village.

Second, as with the older generations, the practice of patrilocal marriage continually contributes to young wives' limited networks in their marital hamlets. Meanwhile, with a strong patriarchal family system, rural women's ties to her natal family and village networks have long been considered to be weak after marriage (e.g., Johnson 1983; Honig and Hershatter 1988). However, as indicated in recent studies, today's young

married women are more likely to maintain strengthened ties with their natal families than their mothers and grandmothers, and therefore, improve their social and economic situation. Based on ethnography studies in rural north China, Zhang (2009) noted that these daughter-parents relations are not only shaped by traditional culture, but also shaped by the changing context of the new political economy. He identified two state institutions, including market reforms and the family planning policy, which have broken down the pre-reform institutional and economic constraints inherent in daughter-parent ties in rural China, thereby, strengthening relations between married daughters and their birth parents.

These strengthened ties with natal families were also found in my field site hamlets and allowed young women to effectively respond to the drought. For example, Bai Qiuping is a woman in her late twenties. She returned from migration work for the birth and early infancy of her son in 2011, while her husband was still working in Qujing. She has very limited farming experience and both of her parents-in-law are in poor health and had difficulty in handling the increased workload due to the drought. In such circumstances, Qiuping's parents came to visit her marital village frequently to help their daughter's household with tobacco production.

It should also be noted however, that the pressure on young women to provide help to their natal family members also increased. In the case of Shi Huacong, because his limited income was not enough to buy more goats from the market, his two sisters, both of whom are married into nearby hamlets, gave him five goats to help him diversify his income source.

Last, young women studying or working outside the village also mentioned that with a bank account in their own name, they had control over their individual income. This may have helped them to achieve their different goals in householding during the drought.

Conclusion

Based upon their own empirical observations and the results of a growing number of post-disaster studies, disaster mitigation organizations, particularly NGOs, have designed detailed checklists to assess the vulnerability of specific groups of people, such as women, children and the elderly. These kinds of practical tools can be useful in

providing for the particular needs of certain groups. However, without a systematic analysis of the power relations between different groups in a given social context, these studies also stereotype certain groups of people as single, homogenous categories. In response to these drawbacks, I have drawn on the analytical framework of "householding" and "intersectionality." I view villagers' responses to drought as manifestations of rural householding, and hence in terms of the various strategies contributing to the reproduction of the household, rather than as operating in isolation from other aspects of rural life.

Empirical findings from the field site hamlets illustrate that during the drought, household members worked together to sustain and reproduce the household. To achieve this goal, most households in the field site hamlets divided labour between agricultural production, non-agricultural employment and work related to domestic chores and care. However, the household is not just a cooperative unit based on common interests and mutual support. Unequal power relations and divisions of labour related to household members' gender and life course shaped individuals' different experiences of and responses to drought.

To be specific, the assumption that middle-aged couple are responsible for care of children and the aged combined with their disadvantage in the migrant labour market, relative to younger people, bound middle-aged couples to rural villages and to the land. The impact of drought on agricultural production forced them to diversify their strategies for earning an income. In some cases, they raised more livestock and planted less land with cash crops. In other situations, they expanded cash-crop production and sought non-agricultural employment. Being the main breadwinners of the rural household and the main caregivers, middle-aged couples had a heavier workload than other family members.

Among middle-aged couples, women's lesser access to resources such as up-to-date information, off-farm work opportunities, political influence, land, savings and credit, and *guanxi* within and outside the community restricted the realization of their interests, especially when these diverged from their husbands'. Therefore, when there were conflicting interests within the household, wives tended to follow the decisions of their husbands.

Meanwhile, there were no obvious differences in the time spent on income-earning work by middle-aged wives and husbands, but the wives performed most of the caregiving work and household chores. Since most care work and household chores need water, constant water shortage during the drought meant that middle-aged women were more likely to experience increased workloads than their husbands, as they spent more time and energy looking for water sources, carrying water and figuring out ways to save water.

In rural China, the elderly are often portrayed as a vulnerable group because the image of the elderly person as being frail and dependent on others is so strong. Contrary to these images, my study finds that during the drought, the elderly were active workers and constantly contributed to their households. However, their responses to and experiences of the drought were closely related to the social and economic resources that other family members provided to them. Through receiving support from their children, most of the elderly were able to partially or completely withdraw from farm work. Therefore, drought exerted very limited impact on their life. In contrast, the minority who received no help from their children despite being unable to fully support themselves due to their frailty suffered from heavy workloads or lived in extreme poverty.

Compared with middle-aged couples and the elderly, young adults and their children were generally advantaged in rural householding during the drought. When rural households experienced a severe decline in household income, raising and educating children as well as arranging their marriage were prioritised. Moreover, both single and married young villagers were encouraged to pursue the most preferable coping strategies, especially migrant work. However, decisions about migrant work were influenced by the well-being of other members of their rural households. If their parents were in poor health and needed intensive care, young household members rarely sought employment opportunities far from home.

Young women's agency during the drought was further constrained by unequal gendered access to resources and unequal gender divisions of labour. However, through gaining support from their natal family, and by entering school or becoming migrant

workers, they benefited from increased freedom and improved access to resources relative to older women.

Conclusion

People living in rural Yunnan, southwest China suffered severe drought between 2009 and 2014. This thesis has examined the social impact of this drought, looking in particular at how differently positioned villagers experienced the drought, and its effects on their everyday life. How did they manage their everyday life in the period of drought? And beyond this, what was the nature of the social institutions and relations shaping the differences in people's experiences of and responses to drought?

Building on existing literature, my ethnographic fieldwork and a broad understanding of Chinese society, I have analysed and explained different forms of social institutions, power relations and sets of practices based on China's rural-urban divide, intra-rural inequality, ethnicity, gender, and social age and life course, and have examined how these forms of and factors contributing to inequality and difference shaped communities', households', and individuals' experiences of and responses to drought. My main findings are as follows:

1. Community-level factors

In the field sites, the two key factors shaping communities' experiences of and responses to drought were the existence of collective infrastructure and the help of external agencies. Hamlets with well-maintained water facilities and roads, regardless of whether or not they were located in a remote mountainous area or belonged to an ethnic minority, and regardless of the type of cash crop production they engaged in, were able to protect their inhabitants from the issues caused by water shortage and hence, maintained a relatively normal life during the period of drought. In contrast, residents of hamlets without access to developed water and transport infrastructure not only suffered great financial loss, but were confronted with severe water shortage, and suffered disruption to their daily life.

Apart from the quality of existing infrastructure, access to external aid, in particular material and financial support, was a further factor shaping villagers' experience of and

response to drought. Material aid, such as water delivered by local police, temporarily relieved villagers in Yunnan from the crisis of drinking water shortage. More importantly, through receiving drought relief funds from higher-level government, local communities were able to build and rebuild water facilities, which not only helped them effectively respond to the current drought, but also guaranteed them protection against drought in the future.

Evidence from the field site hamlets strongly suggests that success in obtaining funds for infrastructure construction and accessing drought relief largely depends on personal connections or *guanxi* between the village communities and external agencies. Communities whose leaders had *guanxi* with key figures were more likely to get access to both advanced infrastructure and drought relief than communities which were in great need, but lacked *guanxi*. The reason is that the performances of external agencies, especially government departments, were judged in terms of the success of projects. In general, they relied heavily on *guanxi* to select sites and carry out projects, as they believed that projects are more effective in villages where there are pre-existing collaborative relations between the village community and themselves.

2. Household-level factors

In disaster research, the different impacts of climate change or drought on rural households are understood to be largely determined by households' flexibility and ability to change their livelihood strategy, especially by diversifying sources of income and intensifying efforts, in particular income-generating activities. This is confirmed by my fieldwork. In my field site hamlets, seeking work off the farm and diversification within agriculture were the two major strategies villagers adopted in response to the drought. These strategies, and how well they succeeded were shaped to a large extent by households' political status. Village cadres or former cadres as well as their families generally had greater access to the resources needed to effectively respond to drought than ordinary villagers.

Cadres' households commonly enjoyed the following advantages: First, they were more likely to have access to income-earning opportunities, especially business

opportunities, than ordinary households. Through negotiating with state officials and completing projects, village cadres were able to cultivate broader *guanxi* with economic and political contacts outside the village than ordinary villagers. These contacts were useful in providing information and smoothing the way for lucrative business opportunities. Second, cadres' household were able to take advantage of the most widely available income-earning opportunities within the field site villages and hamlets, that was, in cash crop production. Since governments generally control and monitor cash crop production through village cadres, their households were well positioned to take advantage in obtaining start-up capital as well as in purchasing and grading practices. Finally, cadres' political positions and stronger *guanxi* with external agencies enabled them to get preferential access to external aid, including drought relief and funds for poverty alleviation.

This thesis further points out that aside from enabling livelihoods through income diversification and other means, household strategies for responding to drought involve efforts to meet non-economic needs, including the need to care for dependants, sustain family members' health and well-being as well as maintain the patriline. Previous studies tend to downplay the importance that people attach to achieving these non-economic aspects of household life, and thus fail to fully appreciate the factors contributing to households' vulnerability and the strategies they adopt to cope with disaster.

In all the field site villages, households with both young and old members to support tended to be more affected by the drought, primarily because of the difficulties they had in meeting non-economic as well as economic needs. The existing childcare, education and elderly support institutions in rural China meant that providing care and education for children as well as supporting elderly family members were particular challenges for households during the drought, as the costs associated with these needs was a heavy financial burden, but their time and labour-consuming nature inhibited income diversification and the search for waged work outside the village.

This thesis also finds that ties and relationships between households serve as a system of social support, which consolidates and expands resource control, and therefore, shapes individual households' experiences of and responses to drought.

In rural Yunnan, two forms of social support and interaction between households, which were crucial to their experiences of, and responses to drought, were the renting out of land and the exchange of labour. The latter was particular important in agricultural work because outmigration increased the workloads of those left behind and made it difficult to hire labour from other households, as every household confronted the same problem of labour shortage. Hiring someone outside the village was too expensive for most households who had suffered income reduction. In these circumstances, households received from and provided to each other considerable assistance in agricultural work.

To have the possibility of support from others always available, rural households put a lot of effort into enhancing and expanding their social networks through daily activities, such as pig raising. When water and labour power became scarce resources, villagers ran into difficulty providing enough water for pigs to drink, and growing enough food for them to eat. And yet in my field site hamlets, households kept raising their pigs all through the drought, the reason being that pigs and, in particular, the sharing of pork and "pig- slaughtering meals" are crucial for the maintenance and reinforcement of social connections among households.

3. Individual-level factors

In disaster studies, both gender and age are commonly understood as key factors shaping variations in people's vulnerability to disasters. However, in many empirical case studies and policy work, gender and age are used merely as static markers, the assumption being that women, the elderly and children are always vulnerable and less able to cope with crisis associated with disasters. In contrast, my fieldwork found that gender and age shape people's responses to drought in particular ways, but they are not stand-alone factors. Unequal power relations related to household members' gender and life course interact and intersect with each other, shaping individuals' different experiences of and responses to drought.

To sustain and reproduce the household during the drought, most households in the field site hamlets adopted a division of labour between agricultural production,

non-agricultural employment and work related to domestic chores and care. Household members of different genders and at different stages of their life course were involved in varying ways in these different areas of work.

In all the field site hamlets, middle-aged couples' critical responsibilities for the children and the aged, combined with their disadvantage in the migrant labour market relative to younger people, bound them to rural areas and required them to be the breadwinners for the rural household. In some cases, they raised more livestock and planted less land with cash crops, while in other situations they expanded cash-crop production and sought non-agricultural employment. Being the main income earners and caregivers of the rural household, middle-aged men and women had heavier workloads than other family members.

There was general agreement among my research participants that middle-aged couples made decisions and worked together to sustain the household during the drought. However, middle-aged wives were more constrained in their choices compared with their husbands. First, gender and age discrimination combined with the stereotype of women's role as housewives to reduce middle-aged wives' off-farm work prospects. In addition, middle-aged wives' limited access to certain resources, including land, bank accounts and social connections with key figures, constrained their ability to achieve their individual goals. Therefore, when there were conflicting interests within the household, wives tended to follow the decisions of their husbands.

In addition, middle-aged married women performed most of the care work and household chores. Taking the responsibility for farming, livestock raising, cooking, and cleaning as well as looking after small children and the aged, it was the middle-aged wives' responsibility to manage the use of water, and extended periods of drought meant that more time and energy had to be spent by them to perform these gender roles.

Consequently, my fieldwork confirms the finding of some previous studies that women, particularly middle-aged wives, show more concern about and are more affected by drought than their male counterparts.

Among elderly villagers, variations in experiences of drought were closely related to the differing amounts of social and economic resources that other family members provided to them.

Those who were supported financially and in terms of labour by their children were able to partially or completely withdraw from farm work. Therefore, drought exerted very limited impact on their daily life. However, old people who were unable to fully support themselves due to physical constraints but who were also unsupported by their children lived in a miserable condition. During the drought, what they earned through their own labour was normally very limited, meaning that in extreme cases, they had to draw upon coping strategies that were depicted by other villagers as short-term and desperate.

In general, the needs of young adults and their children were prioritised in householding strategies during the drought. Thus, even when rural households experienced a severe decline of household income as a result of the drought, they still invested heavily in raising and educating children as well as arranging their marriages.

In addition, young single adults and couples were encouraged to migrate out in search of better job opportunities in the city. However, despite evidence in the literature that remittances tend to increase rural households' ability to respond to climate shocks, a great number of informants in my field site villages said they did not depend on remittances from young migrant family members. This was because the majority of young people were employed as cheap labour with minimal incomes, which in most cases was only just adequate to support themselves and their own households.

To summarise, this thesis has argued that rather than being passive victims waiting for external rescue from drought, rural villagers actively manage the challenges of drought in their daily lives. However, villagers' choices and decisions are made within the institutional constraints and opportunities. Different social institutions and social relations operate at different levels in shaping experiences of the drought and people's strategies for responding to it. In my study, at the community level, connections or *guanxi* between the village communities and external agencies were key. In general, communities with leaders who had *guanxi* with key figures were more likely to get access to both infrastructure and drought relief provided by external agencies, which were the

most obvious causes of the disparity between severely drought-affected and less affected communities. At the household level, the most obvious difference was between ordinary households and those of village cadres' or former cadres'. The latter were more likely to make use of social and political advantages to further income-earning activities to minimize the risk brought about by drought and to create new opportunities. Meanwhile, constrained by the lack of childcare, education and elderly support institutions in rural China, households with both very young children and the extremely old, and households with children in school were more likely to be seriously affected by drought. Furthermore, ties and relationships among households served as a system of social support, which consolidated and expanded resource control, and therefore, further shaped individual households' experiences of and responses to drought. Within the household, unequal power relations related to members' gender and life course interacted and intersected with each other to shape people's experiences of drought and their responses to it.

Contribution

Through examining a drought in Yunnan, this thesis has contributed a more nuanced and concrete approach to understanding the variations in experiences of and responses to drought than the current vulnerability analysis, as commonly employed in disaster research today.

This approach moves away from the short-term identification of vulnerability or resilience. Instead, it is concerned with the reasons why people experience and respond to the same natural hazard differently. Rather than use community and individual characteristics to label people as vulnerable groups or as lacking resilience and find empirical evidence to confirm or compare their vulnerability and resilience, this approach involves systematic examination of how certain social institutions and power relations shape these characteristics, thereby indirectly also shaping experiences of and responses to drought.

Second, this approach involves understanding vulnerability by means of a multi-layered framework. Through analysing different social institutions and social

relations at community, household and individual levels, it provides a better understanding of factors that shape vulnerability and also identifies some factors which contribute to vulnerability but are neglected by previous studies. For example, in common with other studies taking a vulnerability approach to the study of disasters, this thesis finds that gender is a very significant factor in shaping variations in experiences of and responses to drought. However, in contrast to other approaches, the approach taken in this thesis does not involve comparing the vulnerability of female- and male-headed households, for this views household as a unit maximising intra-household welfare, and therefore runs the risk of subsuming individual vulnerability into measurements of household vulnerability. Instead, the approach involves examining the impact of gender within the household to provide a better understanding of the unequal gendered power relations, which play key roles in shaping different experiences of and responses to drought. Meanwhile, a systematic analysis of household-level factors illustrates that the composition and life course of households exert a great impact on household coping strategies. These factors are usually neglected in current research focusing on vulnerability analysis.

It is hoped that in future, the more sophisticated conceptual approach developed in this thesis will help in developing effective policies for addressing the needs of villagers in rural China and elsewhere in the developing world, who face natural hazards, such as drought.

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Appendix

Household Survey Form

No._____

Appellation							
Name							
Gender							
Date of Birth							
Ethnicity							
Education							
Birthplace							
Household registration							
Current occupation & Place of work							
Marital status							
Marriage type							
Source of income							
Expenditure							
Land (mu)							
Land usage							
Crop (mu)							
Migrant work experience							
Care model for the aged							
Residential model for the aged							

Respondent_____

Date_____

Address_____

Notes:

1. If the birthplace is within the county, specific village is required.
2. Marital statuses are: Unmarried, Married, Divorced, Remarried, Separated and Widowed
   Marriage types are: Virilocal Marriage, Uxorilocal Marriage, and Shim-pua marriage
3. Land usage including: Self cultivated, Rented, Lended and Abandoned (Multiple choice)
4. If respondents have migrant work experience, time periods, work types and migrant destinations are required.
5. Care model for the aged are: ①Care by one of the sons, ②Care by all sons, ③Care by both sons and daughters, ④Care by the rural pension, ⑤other___
6. Residential model for the aged are: ①Living alone, ②Living with one of the sons, ③Living with all sons, ④Living with sons alternately, ⑤other____

XX 村基本家庭调查表

编号：　　调查日期：

报道人：　　调查地点：

称谓							
姓名							
性别							
出生日期							
民族							
教育							
出生地							
户籍所在地							
职业及工作地点							
婚姻状况							
婚姻类型							
收入来源							
主要支出							
农地面积							
农地使用情况							
农作物及种植面积							
外出打工经历							
老人奉养方式							
老人居住方式							

注：

1. 若出生地在本县内，则需询问至村庄名。

2. 婚姻状况包括：未婚，已婚，离婚，分居及丧偶；

婚姻类型包括：嫁娶婚，招赘婚，童养媳；

3. 农地使用状况包括：自耕，出租，出借，抛荒（可多选）
4. 如有外出打工经历需记录时段和地点以及从事的具体工作。
5. 老人奉养方式包括：①由一子奉养，②由诸子奉养，③由所有子女奉养，④完全社会奉养，⑤其他（请注明）；
6. 老人居住方式包括：①单独居住， ②与一子居住， ③与诸子共同居住，④在诸子家轮流居住，⑤其他（请注明）。